PROCESS SAFETY MANAGEMENT/ RISK MANAGEMENT PLAN COMPLIANCE AUDIT

Richmond Refinery
Chevron -- Global Refining Company

Report of Audit Findings

Audit Date: June 11 - 22, 2007

Report Date: July 25, 2007

Prepared for:

Richmond Refinery
Chevron – Global Refining
841 Chevron Way
Richmond, CA 94801

Prepared by:

Chevron Corp.
Energy Technology Company
Loss Prevention Unit
Fire & Process Safety Team
3901 Briarpark
Houston, TX 77042

July 25, 2007

Mr. Curtis Anderson
Refinery Manager
Richmond Refinery
Chevron – Global Refining
841 Chevron Way
Richmond, CA 94801

Subject: ***Process Safety Management Compliance Audit Report – Richmond Refinery***

Dear Mr. Anderson:

Enclosed is the final report of the results of the Process Safety Management Compliance Audit for Chevron's Richmond Refinery located in Richmond, California. The audit was conducted between the dates of June 11th through 22nd, 2007.

The Fire & Process Safety Team of Chevron's Energy Technology Company (ETC) appreciates the opportunity to provide continued services to Chevron's Global Refining Co., and specifically the personnel at the Richmond Refinery. We especially acknowledge the assistance provided by Richmond Refinery personnel, specifically, Matt Brennan, John Reed, and Chuck Braxton during the audit process.

This cover letter (signed by the Audit Team Coordinator) and the Certification Statement on the following page (signed by a member of Management) serve as certification that the audit has been completed and that a report of findings has been developed in accordance with the U.S. Occupational Safety and Health Administration (OSHA) PSM Regulation 29 CFR 1910.119(o)(1). OSHA's PSM Regulation requires that an action plan for responding to audit findings be developed, a responsible party be assigned to address each finding, and that each resolution be tracked to completion.

Once again, thank you for the hospitality extended to the audit team during our on-site activities. If you have any questions regarding report content, please contact me at (713) 954-6925 or via e-mail at fosc@chevron.com.

Sincerely,

Charles W. Foshee

Charles W. Foshee
Sr. Fire Protection & Process Safety Engineer
Chevron Energy Technology Company
Loss Prevention Unit
Fire & Process Safety Team

Attachments

CERTIFICATION

Process Safety Management / Risk Management Program Compliance Audit

An audit was conducted of Chevron's Richmond, CA Refinery to evaluate compliance with the provisions of applicable Process Safety Management Standards (29 CFR, sec. 1910.119 and 8 CCR, sec 5189), and with the accident prevention program provisions of applicable Risk Management Programs [40 CFR Part 68, and California Accidental Release Prevention (CalARP) Program 19 CCR, sec. 2735]. The objective of the audit was to verify that the facility's procedures and practices developed under the applicable standards are adequate and are being followed as of the date of the audit. Attached is the compliance audit report that describes how the audit was conducted, how it satisfies the compliance audit requirements, and detailed findings that the audit team identified based on their review of the facility's procedures and practices developed under the applicable standards.

Curtis R Anderson
Printed Name

Refinery General Manager
Printed Title

Curtis R Anderson
Signature

8-1-07
Date

TABLE OF CONTENTS

Executive Summary

Overview

A Process Safety Management (PSM) Compliance Audit was conducted at Chevron's Richmond Refinery between the dates of June 11th through June 22nd, 2007. The Richmond Refinery has crude oil processing capability of 245,000 bpd and manufactures a wide range of products, including high quality base oil at the Richmond Lube Oil Plant. These product streams are shipped via various transportation mechanisms to downstream customers. The facility is located on Chevron property in Richmond, CA.

The audit was conducted by a team of Chevron personnel, and supplemented with external consultants, having significant experience with refinery operations, PSM systems, and general auditing techniques. The Audit was coordinated by Charles Foshee, a member of Chevron's Energy and Technology Company (ETC) -- Fire & Process Safety Team. The audit evaluated facility compliance with applicable requirements of the U.S. Occupational Safety & Health Administration (OSHA) PSM Standard, 29 CFR sec. 1910.119, and California OSHA PSM Standard, Title 8 CCR, sec. 5189; and applicable requirements of the U. S. Environmental Protection Agency (EPA) Risk Management Program (RMP) Rule 40 CFR Part 68, and the California Accidental Release Prevention (CalARP) Program, 19 CCR sec. 2735, were evaluated as they apply to specific areas of the facility covered by the regulations. These requirements apply to facilities that store or handle quantities of flammable liquids in excess of 10,000 lbs.

As noted above, both the U.S. and California State OSHA PSM Standards and the U.S. EPA and California RMP requirements have, as a central component, the implementation of accidental release prevention programs. Historically, such programs were called "process safety management" programs. In subsequent sections of this report, the term "PSM" will be used to refer to the accidental release prevention program requirements under either, or both, U.S. or state requirements.

Background

The U.S. OSHA PSM Standard requires implementation of 14 Prevention Program Elements and includes a requirement that compliance with the standard be confirmed by audits conducted at an interval not to exceed three years. The RMP Rule includes similar accident prevention program requirements for processes covered under the Rule's Program Level 3.

Scope and Approach

The audit covered all elements of both the PSM Standard, and the analogous requirements of the RMP Rule (See Table 1.2), as applied to the equipment and processes at the facility; and, where required by the Standards, those supporting facilities that might affect the covered processes. The Richmond Refinery has elected to apply the principles of PSM throughout the refinery.

The audit team focused their evaluation on both the current PSM implementation status, and PSM activities occurring since the previous audit in 2004. Through a combination of field inspections, document reviews, and interviews of facility personnel, the audit team evaluated the adequacy of, and the adherence to, the procedures and programs developed in accordance to the Standard. The audit team used the Compliance Section of the current audit protocol endorsed by ETC for conducting Process Safety Management Audits at covered facilities within the state of California. The compliance section of this protocol is primarily based upon that provided in the U.S. OSHA PSM compliance directive[1]. The protocol has been modified to leverage lessons learned from significant industry incidents and experiences gained by Chevron ETC personnel conducting numerous PSM Audits throughout the Corporation. Additional details on the conduct of the audit are provided in Section 2.

To be "in compliance" with the Compliance Audit element of the US PSM regulation, employers must "verify that procedures and practices developed under the standard are adequate and are being followed". Chevron ETC auditors define "adequate" as meeting the intents and purposes of the regulation, which includes effective implementation and programs designed to support sustainability throughout the life of the process.

Noteworthy Practices

The audit team found the following facility practices as particularly noteworthy:

1. The audit team was impressed with the pocket book prepared by the Distillation & Reforming area for all major turnarounds. The books contained detailed plans and procedures to be used during various phases of the turnaround and were distributed to all affected parties.

2. The communication of Refinery Instructions via CD with a section of test questions helps contractors to fulfill their training requirements, including a standardized approach to verification of understanding.

3. The HES Dashboard is used very effectively by the Richmond Leadership Team to keep key Process Safety metrics, especially in the area of Mechanical Integrity, in front of refinery decision makers.

[1] CPL 2-2.45A (CH-1), *Process Safety Management of Highly Hazardous Chemicals—Compliance Guidelines and Enforcement Procedures,* Revised 9/13/94.

Results

Based on the review of documents, interviews, and observations, the audit team assessed the adequacy and implementation of each PSM element and found that all of the elements are being addressed at the Richmond Refinery. The audit team identified **17** findings related to the adequacy of the written programs and/or procedures, implementation of the procedures, and/or evidence of the employees' understanding of the procedures. The audit results are summarized in Table 1.1 below.

Audit Results – 2007
Chevron Global Refining
Richmond Refinery

PSM Element	Findings
Employee Participation	0
Process Safety Information (PSI)	3
Process Hazard Analysis (PHA)	2
Operating Procedures	2
Training	2
Contractors	0
Pre-startup Safety Review (PSSR)	1
Mechanical Integrity	0
Hot Work Permit & Other Safe Work Practices	2
Management of Change (MOC)	3
Incident Investigation	0
Emergency Planning and Response	1
Compliance Audits, including Injury and Illness Prevention Programs	1
Trade Secrets	0
TOTAL	**17**

Table 1.1 Audit Results

1. Introduction

1.1 Purpose

This report summarizes the results of the 2007 PSM/RMP Compliance Audit conducted at Chevron's Richmond Refinery in Richmond, California. The audit:

- Assessed facility performance against the requirements of the U.S. OSHA PSM Standard 29 CFR sec. 1910.119; and, the California PSM Standard, Title 8 CCR, sec. 5189, and applicable related requirements, including:
    - Emergency action plans, 29 CFR 1910.38(a)
    - Confined space entry, 29 CFR 1910.146
    - Hot work, 29 CFR 1910.252(a)
    - Hazard communication, 29 CFR 1910.1200(g)

  The PSM Standards also require compliance with applicable recognized and generally accepted good engineering practices, including:
    - API RP 500, *Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2*
    - API RP 570, *Inspection, Repair, Alteration, and Re-rating of In-Service Piping Systems*
    - API RP 752, *Management of Hazards Associated with Location of Process Plant Buildings*
    - ASME *Boiler and Pressure Vessel Code*

- Assessed facility performance against applicable Chevron PSM policies and procedures;
- Addressed the requirement in 29 CFR sec. 1910.119(o)(1) that compliance audits be conducted at least every three years; and,
- Provide a report of the audit findings, to not only satisfy the applicable regulatory requirements, but to also facilitate improvement in the area of safe, reliable operation of the Richmond Refinery.

1.2 Scope

The audit covered all elements of both the U.S. and California PSM Standards, and the analogous requirements of the RMP Rules as they applied to the equipment and process at the facility, and, where required by the Standard, those supporting facilities that might affect the covered process. The U.S. PSM Standard addresses fourteen management program elements, as shown in Table 1.2 below. For RMP Program Level 3 processes (such as are present at the Richmond Refinery), the accidental release prevention program requirements are largely identical to the PSM Standard requirements, with two exceptions as shown in the table. Under the RMP Rule, the Emergency Planning and Response requirements have been removed from the prevention program portion of the regulation and are addressed separately. Additionally, EPA does not have a Trade Secrets element, since these considerations are dealt with under a separate regulation (40 CFR Part 2). Similarly, the California State PSM Standard generally has the same requirements as the U.S. Standard, with a few exceptions and relocation of specific element components. The primary differences between the U.S. and California PSM Standards are the inclusion of an Injury and Illness Prevention Program in the California regulation, and exclusion of the Compliance Audit and Trade Secret elements.

Program Element	U.S. OSHA 29 CFR 1910.119 Paragraph	California OSHA 8 CCR Section 5189 Paragraph	EPA 40 CFR 68 Program 3
Employee Participation	c	p	68.83
Process Safety Information	d	d	68.65
Process Hazard Analysis	e	e	68.67
Operating Procedures, including Safe Work Practices	f	f	68.69
Training	g	g	68.71
Contractors	h	h	68.87
Pre-startup Safety Review	i	i	68.77
Mechanical Integrity	j	j	68.73
Hot Work Permit	k	k	68.85
Management of Change	l	l	68.75
Incident Investigation	m	m	68.81
Emergency Planning/Control/Response	n	n	68.95, not part of the prevention program under RMP
Audits	o	Not Addressed	68.79
Trade Secrets	p	Not Addressed	Covered by 40 CFR 2.
Injury and Illness Prevention Program	Not Addressed	o	Not Addressed

Table 1.2 – Comparison of Standards

2. Conduct of the Audit

2.1 General Audit Technique

The audit was performed using methods consistent with the guidance provided in the AIChE, Center for Chemical Process Safety publication, *Guidelines for Auditing Process Safety Management Systems.*

The audit consisted of a review of the written PSM procedures, review of documentation resulting from the PSM activities, interviews with facility personnel, and field observations. These audit techniques reviewed the management systems in place to determine if compliance involving each element had been achieved, and whether the systems were in place to reasonably expect sustained compliance.

The audit team used the compliance section of the current audit protocol endorsed by ETC for conducting Process Safety Management Audits at covered facilities within the state of California, which is based upon the U.S. OSHA PSM compliance directive, CPL 2-2.45A (CH-1, dated 9/13/94), as an audit guide.

2.2 PSM Compliance Audit Requirements

The U.S. OSHA PSM Standard contains five distinct requirements under the Compliance Audit element, in paragraph 1910.119(o), as follows:

PSM Audit Requirements (verbatim excerpt from 29 CFR 1910.119)

(o) Compliance Audits.
- (1) Employers shall certify that they have evaluated compliance with the provisions of this section at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed.
- (2) The compliance audit shall be conducted by at least one person knowledgeable in the process.
- (3) A report of the findings of the audit shall be developed.
- (4) The employer shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.
- (5) Employers shall retain the two most recent compliance audit reports.

The manner in which these five compliance audit regulatory requirements were addressed is documented as follows:

2.2.1 Evaluation of Compliance within Three-year Interval

The two previous PSM compliance audits at the Richmond Refinery were conducted in September 16 – 20, 2002 and June 14 – 25, 2004, with the final report dated July 29, 2004. This audit was conducted June 11 - 22, 2007.

2.2.2 Audit Team

The audit team was comprised of individuals with varied backgrounds. Mr. Charles Foshee, a Sr. Fire & Process Safety Engineer in Chevron's Energy Technology Company (ETC) served as the audit team leader, who facilitated and documented the Compliance Audit of the Richmond Refinery. Mr. Foshee is a Chemical Engineer with a broad background in chemical plant operation and PSM implementation, trained in PSM auditing, and has conducted, led, or participated in numerous PSM audits. The other members of the audit team included: Mr. Robert Chesmer, Sr. Safety Specialist, Global Refining; Mr. Gerald Click, OE Review Advisor, Corporate HES; Mr. Walt Frank, Senior Consultant, ABS Consulting; Mr. Lynn Long, Reliability Engineer, Chevron ETC; Ms. Brenda Moss, PSM Specialist, Pascagoula Refinery; John Newby, Operational Excellence Specialist, Caltex Refining – Australia; Mr. Jeff Rose, Operations Director, ERM-CVS; Mr. Gary Ryan, General Manager, Alberta EnviroFuels; and, Mr. Guy Todaro, OE Review Advisor, Corporate HES. Mr. Foshee provided audit training to the team prior to the audit and guidance to the auditors throughout the conduct of the audit. Six of the team members have significant experience in Refining processes, while five of the team members have significant experience in an auditing environment. Auditor Qualification Forms providing detailed qualifications and experience levels of each auditor can be found in Appendix A.

The audit team members' assignments are shown in Table 2.1 on the following page. Auditor assignments were made based upon the auditors' relevant experience and knowledge in the PSM elements they were to audit. The make-up of the team adequately addresses the second compliance audit requirement.

Mr. Robert Chesmer Contractors	Mr. Gerald Click Compliance Audits Injury & Incident Prevention Programs
Mr. Charles Foshee Employee Participation Process Safety Information Operating Procedures Trade Secrets	Mr. Walt Frank Process Safety Information Pre-Startup Safety Review Management of Change
Mr. Lynn Long Mechanical Integrity	Ms. Brenda Moss Process Hazard Analysis
Mr. John Newby Emergency Planning & Response	Mr. Jeff Rose Training Incident Investigation
Mr. Gary Ryan Employee Participation	Mr. Guy Todaro Hot Work & Other Safe Work Practices

Table 2.1 Auditor Assignments

2.2.3 Audit Report

This report documents the basis for and findings of the audit team to the personnel and management of the Richmond Refinery.

2.2.4 Follow up to Findings

Refinery management will determine and document an appropriate response to each of the audit team's findings. Responses to the findings and supporting documentation to verify implementation should be forwarded to the facility's PSM Coordinator for review and incorporation into a final written record of completed actions, indicating that any deficiencies noted in the findings were corrected.

2.2.5 Report Retention

The Richmond Refinery will retain the two most recent reports of its PSM audit findings (this report and that of the 2004 audit).

3. Results

The purpose of a PSM Compliance Audit is to determine if the facility program, as described in facility procedures, is adequate to implement the ***intent*** of the PSM Standard. Since the PSM Standard is a "performance standard", outlining requirements in broad terms, OSHA anticipates that facility procedures may be more detailed and, in some cases, may exceed the literal requirements of the Standard. In other words, OSHA has stated that it expects the facility to provide the detail necessary to describe a program that is necessary and sufficient to implement the ***intent*** of the Standard. OSHA has taken the position that if a facility self-imposes a PSM-related requirement, then that requirement is necessary to implement PSM to meet the needs unique to the facility. Consequently, the audit team was charged with verifying compliance with self-imposed requirements (as described in facility procedures) as well as the literal requirements of the PSM Standard.

A finding was identified if the audit team perceived an omission in the written PSM procedures, a failure to follow the procedures, or a significant lack of understanding on the part of affected employees with regard to their responsibilities concerning a procedure. In some instances, closely related exceptions have been grouped into a single finding, indicating a potentially systemic issue. The balance of this section of the report includes the audit team's findings, broken down by PSM element. Each finding cites the applicable regulatory provision (29 CFR and 8 CCR) or refinery procedure addressed by the finding.

3.1 Employee Participation

Item Findings

Based upon the records and activities reviewed, the audit team did not identify any compliance exceptions with respect to this element.

3.2 Process Safety Information (PSI)

Item Findings

3.2.1 Safe Upper & Lower Limits are required to be developed for critical operating parameters, and the consequences of deviating from those limits. There is a similar requirement for documenting Operating Limits and consequences of deviating from those limits in the Operating Procedures. Per Refinery Instruction No. 362 (RI-362), "*Process Safety Information*", the Richmond Refinery has chosen to document this information in the "COD Table" section of the Electronic Operations Manuals (EOMs) for each specific unit. Based on a review of several COD Tables for a representative sample of units, it appeared to the audit team that Safe Upper & Lower Limits and Consequences of Deviation are not consistently documented in the COD Table. Examples include:

- The auditor could not access COD Tables through the EOM for the Desalter Effluent Benzene Removal Unit (DEBRU) nor the Flare Gas Recovery Unit;
- It appeared to the auditor as if several Safe Upper and Lower Limits were not established in the Naphtha HydroTreater (NHT) and No. 5 Rheniformer units; and,
- It appeared to the auditor as if several parameters in the No. 16 Diesel HydroTreater (DHT) unit did not have consequences of deviating from established limits defined.

[1910.119(d)(2)(i)(D&E), 5189(d)(2)(D & E)].

3.2.2 Process Safety Information pertaining to equipment in the process, including safety systems (e.g., interlocks, detection or suppression systems) is required to be developed and maintained for use in facility Process Hazard Analyses (PHAs). Per Refinery Instruction No. 362 (RI-362), "*Process Safety Information*", the Richmond Refinery has chosen to document descriptions of safety systems on the ChevronTexaco Equipment Information System database. Based on the auditor's search through numerous units included in this system, no safety system descriptions could be found. [1910.119(d)(3)(i)(H), 5189(d)(3)(A)(8)] (See Finding No. 3.4.1)

3.2.3 Employers are required to develop and maintain a compilation of written Process Safety Information, including Piping & Instrument Diagrams (P&IDs), to enable the employer and employees to identify and understand the

hazards posed by processes involving highly hazardous chemicals before conducting any Process Hazard Analysis (PHA) required by the standard. Based on a review of recently conducted PHAs, interviews with PHA Facilitators and participants, and a review of the backlog of P&ID updates, the audit team concluded that while PSI was routinely compiled and available to the team during the PHA process, the Piping & Instrument Diagrams (P&IDs) used during the PHA process did not appear to have been consistently maintained as complete or accurate. [1910.119(d), 5189(d)]

3.3 Process Hazard Analysis (PHA)

Item ***Findings***

3.3.1 Process Hazard Analyses, including site-wide Facility Siting studies conducted to understand the hazards associated with occupied buildings near process areas, are required to be updated and revalidated at least every five years to ensure that the analysis is still reflective of the current process, building locations, and occupancy levels evaluated during the study. Appendix H of Chevron's Fire Protection Manual provides guidance as to how Chevron facilities are expected to comply with the requirement in accordance with API RP 752. This includes conducting Building Siting Assessments for all occupied buildings vulnerable to process hazards, and revalidating such assessments on a 5-year frequency. The audit team found no evidence that the site-wide API RP 752 Facility Siting Study conducted in 2000 had been revalidated within a 5-year period. The audit team acknowledges that PHA Revalidations for specific units utilized a checklist review to consider facility siting issues associated with the control room associated with the unit under study. However, the audit team saw no evidence that Building Siting Assessments for other occupied buildings that could be impacted by process hazards had been revalidated within a 5-year period. The audit team acknowledges that a revalidation of the site-wide Facility Siting Study has been scheduled for the Richmond Refinery during the third quarter of 2007.

The Facility Siting Study conducted in 2000 identified several buildings considered vulnerable to process hazards that had been excluded from the scope of the study due to the management of occupancy levels below the established threshold criteria. Neither documentation to identify these buildings, nor evidence of a management system to maintain occupancy levels below the established threshold criteria, could be produced during the audit. [1910.119(e)(6), 5189(e)(2)(D)]

3.3.2 Recommendations resulting from PHAs and PHA Revalidations are required to be resolved in a timely manner and completed as soon as possible, with a written schedule of when these actions are to be completed, and documentation of the completed item. Sections 5.7 and 5.9 of Refinery Instruction No. 363 (RI-363), "*Process Hazards Analysis*", indicate that documentation to support completion, or justifiably declining the recommendation, should be retained in the PHA database. Based on a

review of the system used by the refinery for tracking and documenting the resolution and implementation of recommendations from PHAs, interviews with the PHA Coordinator(s) for the facility, and interviews with several Project Managers, the audit team saw no evidence of a systematic process to document the resolution and/or actions taken to address recommendations generated from project PHAs. [1910.119(e)(5), 5189(e)(4)]

3.4 Operating Procedures

Item ***Findings***

3.4.1 Operating procedures are required to include a description of applicable safety systems and their functions, including interlocked shutdown systems. Based on the auditor's review of several Electronic Operating Manuals (EOMs), it appeared to the auditor that descriptions of interlocked systems and their functions were inconsistently addressed in the Manuals. The auditor reviewed some units, such as Cracking/SRU with very detailed descriptions of interlocked systems and their functions; others, such as Cracking/Butamer, only indicated the process parameter and instrument number that activates the system; others, such as S. Isomax/SRU, did not appear to discuss interlock shutdown systems. [1910.119(f)(1)(iv), 5189(f)(1)(B)(3)]

3.4.2 Operating procedures are required to be reviewed as often as necessary to ensure that they are accurate and reflect current practices. Operating Procedures must include operating limits, safety and health considerations, and safety systems and their functions. From Appendix C of the PSM Standard, OSHA indicates that "Operating Procedures describe tasks to be performed, data to be recorded, operating conditions to be maintained, samples to be collected, and safety and health precautions to be taken". Chevron's Refining PSM Guidance Document dated April 4, 1997 identifies procedures for Normal Operations as including "sampling procedures, equipment monitoring procedures, routine operator duties, periodic checklists, normal control of equipment or processes to key operating parameters based on safety, alarm limits, alarm/shutdown test procedures, and operating turnover requirements".

The Refinery defined the term "Operating Procedures" in Appendix P of the Electronic Operating Manuals Guidebook. Per Appendix P, written step-by-step "Operating Procedures" are only necessary for non-routine duties or tasks, and for routine tasks identified as "Critical" or "Complex". The Refinery has recently implemented an Annual Procedure Review Process to validate those step-by-step procedures meeting the refinery's definition of Operating Procedures.

The Refinery uses Operating Practice Documents, such as Job Aids and Checklists, to communicate the appropriate and consistent manner in which

Operators are expected to perform routine tasks and duties in the processing areas. Job Aids are considered to be relatively simple tasks that experienced operators could perform without requiring validation of a step-by-step procedure, but may still be utilized for training purposes and by less experienced operators. Checklists are generally used to ensure that monitoring activities for a number of similar devices are conducted and documented. Most Job Aids and/or Checklists reviewed by the auditor appeared to meet OSHA's and Global Refining's definition of Operating Procedures. Examples of such documents include:

- B&S, Emergency Response Checklist, Loss of Crude Injection Pumps Checklist, TBCE312.doc;
- B&S, Emergency Checklist, Loss of Tank Gauges on Computer Checklist, TBCE308;
- Isomax, TKN/ISO, Operations Checklist, Switch From Liquid to Vaporization Mode, ISO-NP-4222;
- Isomax, ISO-6, Operations Checklist, Commission K-605, ISO-CL-4423;
- Cracking, Alkylation Plant, Job Aid, Response to Foaming Caused by C6 Feed, ALKQ02j;
- Cracking, Alkylation Plant, Job Aid, Sample Contactor Acid, Alkd01j.doc,

But, because these documents do not meet the Refinery's definition of Operating Procedures, they are excluded from the review process. Likewise, other required components of Operating Procedures that are not embedded in the step-by-step procedures, such as; operating limits, safety and health considerations, and safety systems and their functions, were not included in the review process. Interviews with Refinery personnel indicated that there was no other process to periodically review Job Aids, Checklists, COD Tables, or Safety Information contained within the EOMs to ensure their accuracy. [1910.119(f)(3), 5189(f)(3)]

3.5 Training

Item ***Findings***

3.5.1 Employers are required to consult with operating employees regarding the appropriate frequency and content of refresher training programs. The Operations Training Processes Manual states that "Instructors shall formally solicit feedback from all participants involved in training sessions", and that "employees involved in operating processes will be part of a consultation effort with their head operator, section trainer, and area supervisor...". The audit team identified no evidence of an on-going dialog between operators, operations management, and personnel involved with the delivery of the CBT Refresher Training. Interviews by the audit team with a representative number of operators throughout the refinery indicated that CBT Refresher Training was not consistently effective in ensuring that operators understand

and adhere to the Operating Procedures, and that operators did not recall that their feedback was solicited regarding the content and frequency of refresher training. [1910.119(g)(2), 5189(g)(2), Operations Training Process Manual]

3.5.2 The California OSHA PSM Standard requires that maintenance employees be provided refresher training at least every three years to ensure safe operation of the facility. The audit team was not shown documentation of an on-going Refresher Training program for Maintenance employees that was developed in consultation with them. [5189(g)(2)]

3.6 Contractors

Item Findings

Based upon the records and activities reviewed, the audit team did not identify any compliance exceptions with respect to this element.

3.7 Pre-Startup Safety Review (PSSR)

Item Findings

3.7.1 PSSRs are required to confirm that recommendations from PHAs be resolved or implemented prior to the introduction of hazardous materials into the new or modified process or facility; and that modified facilities meet the requirements contained in the Management of Change (MOC) procedure. The PSSR form used by the Richmond Refinery did not appear to require verification and documentation that recommendations generated during the project PHAs, and/or Health & Safety Evaluations or various review processes required by the MOC process, have been adequately resolved before introducing hazardous chemicals into the new or modified facilities. [1910.119(i)(2)(iii), 5189(i)(2)(C)]

3.8 Mechanical Integrity

Item Findings

Based upon the records and activities reviewed, the audit team did not identify any compliance exceptions with respect to this element.

3.9 Hot Work and Safe Work Practices

Item Findings

3.9.1 The PSM Standard, and its referenced requirement 29 CFR 1910.252, *Welding, Cutting, and Brazing* require that facilities designate the individual(s)

responsible for authorizing hot work activities and inspecting the areas where the activities will occur. The Richmond Refinery has implemented Refinery Instruction No. 341 (RI-341), *Hot Work and General Work Permits,* which defines two types of maintenance/construction activities (Open Flame, and Non-Open Flame) that require hot work permits, and also establishes the individuals responsible for authorizing such activities. For Non-Open Flame activities, the Head Operator of the specific process area can authorize and issue the Hot Work Permit. For Open-Flame activities, a member of the Chevron Fire Department must inspect the area before authorizing the work to begin. RI-341 does not appear to address the permitting or authorization requirements when the same work crew is performing a job that would involve **both** Open Flame and Non-Open Flame activities. The audit team observed several instances where one permit was issued for jobs that involve both Open Flame and Non-Open Flame activities; and, in one instance did not include the higher level of authorization from the Chevron Fire Department. [1910.252(a)(2)(iv)]

3.9.2 Refinery Instruction No. 841 (RI-841), *Release of Operating Equipment for Mechanical Work*, describes how the facility will meet the requirements of 29 CFR 1910.147, *Control of Hazardous Energy.* RI-841 indicates that management will conduct weekly audits of actual Lock-Out/Tag-Out jobs in progress in each operating area. The audit team was not shown documentation to support that such audits are being consistently conducted on a weekly basis. [Refinery Instruction No. 841, Section 12.0, Auditing]

3.10 Management of Change (MOC)

Item ***Findings***

3.10.1 MOC procedures are required to address the potential impact of the change on the safety and health of the work force. Refinery Instruction No. 370 (RI-370), *Management of Change,* indicates that this will be addressed and documented either by a team performing a Health & Safety Evaluation (HSE) or a Process Hazard Analysis (PHA). The audit team reviewed approximately 42 MOC documents and associated supporting documents, and interviewed personnel who attend HSE meetings. It appears to the audit team that the evaluation of certain changes relative to the impact of the change on the safety and health of employees in the workplace is not being conducted and/or documented with sufficient rigor, attention to detail, and/or appropriate subject-matter-expertise to adequately understand and manage the risks posed by the change.

Based on the documentation provided, the following are examples in which attention to detail and/or subject-matter-expertise does not appear to have been adequately addressed in the HSE meetings:

- MOC No. 16518 to extend inspection dates for PRDs and install block valves below PRDs on air bottles without requiring a relief system or an inspection review or participation from these departments in the HSE.
- MOC No. 15545 to relocate an injection point without requiring a metallurgy or an inspection review or participation from these departments in the HSE to address potential corrosion issues.
- MOC No. 16395 for changing catalyst type and stratification in reactor with HSE attendees listed as "N/A".
- MOC No. 13633 for installing a jumpover line which required no other pre-implementation reviews other than an HSE which left a documented concern unresolved.
- MOC No. 16529 for replacing Marsh pumps indicated that no Process Safety Information would be affected by the change, although SIS datasheets for the old pumps are still accessible via the refinery intranet.
- MOC No. 16574 for extending a PSV inspection date without HSE participation by Inspection Department. Comments in HSE state, "No issues as long as Inspection buys off on it." During the Inspection Review, the reviewer quoted a 10% extension window allowed in RI-609 that had been removed from the Refinery Instruction in lieu of performing an MOC to justify the extension.
- MOC No. 15826 for the Turbo Project without recognition of the need to update/provide Maintenance procedures and/or training to maintenance personnel.

[1910.119(l)(2)(ii), 5189(l)(2)(B)]

3.10.2 Employers are required to manage changes to process technology and equipment; including addressing how the change might impact the safety and health of employees, the necessary time period for the change, and establishing authorization requirements for the change. Based on interviews with refinery personnel, it did not appear to the audit team that processes for managing changes associated with temporarily placing critical alarms or shutdown systems in by-pass mode for a continued period of time (longer than required for routine testing of shutdown systems) adequately addressed the requirements of the MOC element. Based on interviews with refinery personnel, it appeared to the audit team that different Business Units were managing this process differently, and that clear authorization requirements or time periods for which the by-passed condition will be authorized were not consistently established, and a documented evaluation of how continued operation with the by-passed condition may impact the health and safety of employees in the workplace was not consistently performed.
[1910.119(l)(2)(ii, iv, & v), 5189(l)(2)(B, D, & E)]

3.10.3 For changes to process chemicals, technology, equipment, and/or procedures that result in a change to Process Safety Information or Operating

Procedures as defined by the regulation, such information and procedures are required to be updated accordingly. The audit team reviewed approximately 42 MOCs. The auditors observed approximately 14 affected documents that appeared to be in need of update for which updates could not be verified. For instance:

- Three MOCs (15458, 15503, 16475) asserted that operating procedures had been updated. However, corresponding revisions to the EOMs could not be identified.
- The procedure review form (used to determine if procedure modifications were required) could not be located for three other MOCs. (15524, 15545, 15657).
- Required updates to Consequence of Deviation tables could not be located for two of the MOCs (15585, 16475) reviewed.
- Required updates to the chain lock checklists managed through the IntelliTrac system could not be located for two other MOCs (15540, 15826) reviewed.
- Required updates to equipment datasheets could not be located for four of the MOCs (15448, 15826, 16372, 16529) reviewed.

[1910.119(l)(4 & 5), 5189(l)(4 & 5)]

3.11 Incident Investigation

Item ***Findings***

Based upon the records and activities reviewed, the audit team did not identify any compliance exceptions with respect to this element.

3.12 Emergency Planning and Response

Item ***Findings***

3.12.1 Refinery Instruction No. 480 (RI – 480), *Emergency Action Plans*, indicates that all personnel should move to a designated shelter-in-place facility immediately upon hearing the refinery-wide alarm siren and subsequent announcement. RI – 480 also designates several buildings throughout the Refinery as Shelter-In-Place facilities to serve as safe havens in the event of an emergency. During the Facility Siting Study performed in 2000, these buildings were inspected to ensure that they could meet certain criteria to effectively function as a Shelter-In-Place facility. Such criteria included: a.) penetrations on all four sides of the building are sealed, or supplies are provided such that penetrations can be quickly sealed; b.) a single point shutdown switch for the HVAC units; and, c.) adequate communication equipment including phones, plant radios, and speakers tied into the facility public address system. The audit team performed a physical inspection of

Hydro-Processing Building # 2, which was designated as a Shelter-In-Place facility. The auditors observed that the doors of the building appeared to be in various states of disrepair and that sufficient equipment did not appear to be provided to ensure that the building can be adequately sealed in a timely manner during an emergency situation. In addition, the audit team could not locate evidence of a management system, such as a drill schedule or inspection plan, the purpose of which is to ensure that Shelter-In-Place buildings are maintained appropriately to effectively serve as a safe place of refuge during an emergency. [1910.120 (q)(2)(iv) and Refinery Instruction No. 480]

3.13 Compliance Audits, including Injury and Illness Prevention Program (IIPP)

Item ***Findings***

3.13.1 The California OSHA PSM Standard, and its derivative requirement, 8 CCR Section 3203, *Injury and Illness Prevention Programs*, require that employers conduct scheduled periodic inspections to identify work place hazards, and unsafe conditions and work practices. The Standard also requires that records of such inspections identify the person(s) conducting the inspection, the issues observed, and action taken to correct any identified unsafe conditions and work practices; and that the records be retained for at least one (1) year. Refinery Instruction No. 300 (RI – 300), *Injury and Illness Prevention Plan*, assigns the responsibility for the inspections and necessary corrective actions, including documentation of such activities, to the Area Business Unit Managers, Division Managers, and the Maintenance Leadership Team to implement in their respective areas. The specific plans for the various areas generally indicate that inspections will occur monthly; and records of the inspections, including documentation of the corrective actions will be managed via an IIPP Audit database. Based on a review of the IIPP Audit database, it appeared to the auditor that records of inspections and corrective actions are not systematically documented in the database. [3203(b)(1)]

3.14 Trade Secrets

Item ***Findings***

Based upon the records and activities reviewed, the auditor did not identify any compliance exceptions with respect to this element.

APPENDIX A

AUDITOR QUALIFICATION FORMS

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Robert Chesmer

1) Role as Participant: Check all that apply:

18 years	Design Engineer,
	Process Engineer,
	Operations Representative,
	Process Master/Expert,
15 Years	Management Representative,
2 Years	Maintenance Representative,
	Trained Process Hazards Analysis Facilitator,
	Trained Latent Conditions Facilitator,
	Trained Inherently Safer Solutions Facilitator,
Yes	Participant knowledgeable in the process involved,
Yes	Trained Tap RooT® Facilitator
	Trained PSM Audit Facilitator
	Contractor: If involved in a Tap RooT® Investigation,
Yes	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
20 Years	Other: Safety Specialist

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Trained in Hazop, Auditing, Incident Investigation, Emergency Response, Oil Spill Prevention.
Education:	B.Sc Engineering, Dip. Safety Management.
Other Relevant Experience:	Developed National Scheme for Contractor Safety Training, participated in 10+ plant audits involving plants of similar in process and size to Richmond.

4) CAI: CROK

Date: 07-01-07

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Gerald Click

1) Role as Participant: Check all that apply:

_____	Design Engineer,
6 years	Process Engineer,
14 years	Operations Representative,
_____	Process Master/Expert,
10 years	Management Representative,
_____	Maintenance Representative,
_____	Trained Process Hazards Analysis Facilitator,
_____	Trained Latent Conditions Facilitator,
_____	Trained Inherently Safer Solutions Facilitator,
yes	Participant knowledgeable in the process involved,
_____	Trained Tap RooT® Facilitator
_____	Trained PSM Audit Facilitator
_____	Contractor: If involved in a Tap RooT® Investigation,
_____	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
6 years	Other: Health, environment and safety manager, including PSM responsibilities

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Multiple courses in management systems auditing, both as a trainee and a trainer.
Education:	B.S. Chemical Engineering, Washington State University 1967 MBA, Western Washington University, 1986
Other Relevant Experience:	Have performed over 150 corporate audits of safety, health, environmental and PSM subjects over the past 15 years. Responsible for the design of a corporate management systems audit process specifically designed to include PSM considerations.

4) CAI GCBM

Date: June 27, 2007

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Charles W. Foshee

1) Role as Participant: Check all that apply:

7 yrs	Design Engineer,
	Process Engineer,
4 yrs	Operations Representative,
	Process Master/Expert,
6 yrs	Management Representative,
	Maintenance Representative,
Yes	Trained Process Hazards Analysis Facilitator,
	Trained Latent Conditions Facilitator,
	Trained Inherently Safer Solutions Facilitator,
Yes	Participant knowledgeable in the process involved,
Yes	Trained Tap RooT® Facilitator
Yes	Trained PSM Audit Facilitator
	Contractor: If involved in a Tap RooT® Investigation,
	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
7.5 yrs	Other: Process Safety Consultant

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Trained in PSM/RMP and PSM Auditing; Trained in PHA Facilitation; Trained in Incident Investigation; Trained in Layer of Protection Analysis; Qualified Riskman2 I-HAZID Facilitator
Education:	B.S., Chemical Engineering, Louisiana Tech University, 1981
Other Relevant Experience:	Facilitated, led, and/or participated in over 40 PSM Audits at various facility types; Facilitated over 50 Process Hazard Analyses, several of which involved refinery processes similar to those present at Richmond

4) CAI: FOSC

Date: 06-26-07

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Walter L. Frank, Jr.

1) Role as Participant: Check all that apply:

2 yrs	Design Engineer,
3 yrs	Process Engineer,
	Operations Representative,
	Process Master/Expert,
5 yrs	Management Representative,
	Maintenance Representative,
Yes	Trained Process Hazards Analysis Facilitator,
	Trained Latent Conditions Facilitator,
	Trained Inherently Safer Solutions Facilitator,
Yes	Participant knowledgeable in the process involved,
Yes	Trained Tap RooT® Facilitator
Yes	Trained PSM Audit Facilitator
	Contractor: If involved in a Tap RooT® Investigation,
	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
20 yrs	Other: Process safety consultant

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Trained in PSM/RMP and PSM Auditing; Trained in PHA Facilitation; Trained in Incident Investigation; Trained in OSHA/EPA process safety regulations
Education:	B.S. Chemical Engineering, Rose-Hulman Inst. Of Technology, 1973
Other Relevant Experience:	Professional Engineer (Delaware); Fellow (AIChE); Author/co-author of 4 books on process safety topics (2 published/2 in progress), Instructor for courses on PSM/RMP regulations, auditing, incident investigation, safety culture enhancement, explosion prevention (for AIChE and ABS Consulting), auditor (often project leader) for approximately 50 audits and program evaluations
4) CAI	WFAG
Date:	6/25/07

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Stephen Lynn Long

1) Role as Participant: Check all that apply:

5 years	Design Engineer,
	Process Engineer,
	Operations Representative,
	Process Master/Expert,
	Management Representative,
	Maintenance Representative,
	Trained Process Hazards Analysis Facilitator,
	Trained Latent Conditions Facilitator,
	Trained Inherently Safer Solutions Facilitator,
10 years	Participant knowledgeable in the process involved,
	Trained Tap RooT® Facilitator
	Trained PSM Audit Facilitator
	Contractor: If involved in a Tap RooT® Investigation,
10 years	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
10 years	Other: Reliability Engineer

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Root Cause Analysis (Chevron's Method), Pressure Vessel Design (ASME Class)
	Maintenance Management Systems (U of Wisconsin)
Education:	Masters Industrial Engineering, 1998: MS Petroleum Engineering 1983: BS Mechanical Engineering 1981
Other Relevant Experience:	Design Engineer Texaco Research for 5 years, Reliability Engineer for Texaco, Ford and Chevron. Conducted numerous root cause analysis along with developed and taught Chevron's class. Helped develop and implement maintenance programs including using Reliability Centered Maintenance.

4) CAI: SLLF

Date: June 26, 2007

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Brenda Moss

1) Role as Participant: Check all that apply:

_____	Design Engineer,
_____	Process Engineer,
6 yrs	Operations Representative,
_____	Process Master/Expert,
_____	Management Representative,
_____	Maintenance Representative,
9 yrs	Trained Process Hazards Analysis Facilitator,
_____	Trained Latent Conditions Facilitator,
_____	Trained Inherently Safer Solutions Facilitator,
X	Participant knowledgeable in the process involved,
10 yrs	Trained Tap RooT® Facilitator
8 yrs	Trained PSM Audit Facilitator
_____	Contractor: If involved in a Tap RooT® Investigation,
_____	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
10 yrs	Other: PSM Specialist, Pascagoula Refinery

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Trained in PSM, PSM Auditing, PHA Facilitation, TapRoot Facilitator and TapRoot Train the Trainer, ISO 9001 Lead Auditor trained
Education:	Fully Qualified Operator, Pascagoula Refinery
Other Relevant Experience:	Facilitated, led, participated and/or coordinated PSM PHAs/Revalidations for Pascagoula Refinery for the last 9 years. Facilitated 6 large project hazops in Stage 2,3 & 4 of CpDep for Chevron Pascagoula Refinery. Facilitated PHA revalidations for Chevron Salt Lake Refinery and Chevron Perth Amboy Asphalt Facility. Facilitated 45 Incident Investigations utilizing TapRoot and 5 Why investigation processes for Chevron Pascagoula Refinery. Participated as team member in PSM audits at Port Arthur and Oak Point Chemical facilities. OE review team member for Chevron Lubrication facility in Charleston, South Carolina and Chevron Pipeline, Houston. Also coordinated the last two OE/PSM reviews for Chevron Pascagoula Refinery.

4) CAI BGDI

Date: 6/27/2007

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	John Lawrence Newby

1) Role as Participant: Check all that apply:

_____	Design Engineer,
_____	Process Engineer,
_____	Operations Representative,
_____	Process Master/Expert,
10 years	Management Representative,
8 years	Maintenance Representative,
_____	Trained Process Hazards Analysis Facilitator,
_____	Trained Latent Conditions Facilitator,
_____	Trained Inherently Safer Solutions Facilitator,
Yes	Participant knowledgeable in the process involved,
Yes	Trained Tap RooT® Facilitator
_____	Trained PSM Audit Facilitator
_____	Contractor: If involved in a Tap RooT® Investigation,
_____	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
_____	Other: _____

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	OE Certification; LRBS Facilitator; Apollo Incident Investigation;
Education:	Bachelor of Science (Hons) (Metallurgy), University of NSW, Australia.; Master of Engineering Science (Civil Engineering) UNSW; Certificate in Advanced OH&S Management; Certificate in Environmental Management; Member of Institution of Engineers Australia; Chartered Professional Engineer.
Other Relevant Experience:	**EMERGENCY MANAGEMENT**; Produced and maintained Emergency Response Plan and prepared and conducted both desktop and field Emergency Exercises both in-house and including external agencies. Acted as Emergency Co-ordinator for the refineries. Facilitated the introduction of a common Emergency Management framework across the Kurnell and Lytton Refineries. Developed the PSM Emergency Management Element across both Caltex Refineries, Kurnell and Lytton. **SECURITY**. ; Managed the Security function on site at Kurnell; established the t Security contract and set up monitoring Security performance via appropriate kpi's. Prepared Security plans for potential increases in Security threat assessment levels.
4) CAI	JNCK
Date:	23rd July 2007

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Jeff S. Rose

1) Role as Participant: Check all that apply:

_____	Design Engineer,
6 years	Process Engineer,
_____	Operations Representative,
_____	Process Master/Expert,
4 years	Management Representative,
4 years	Maintenance Representative,
Yes	Trained Process Hazards Analysis Facilitator,
_____	Trained Latent Conditions Facilitator,
_____	Trained Inherently Safer Solutions Facilitator,
Yes	Participant knowledgeable in the process involved,
Yes	Trained Tap RooT® Facilitator
_____	Trained PSM Audit Facilitator
_____	Contractor: If involved in a Tap RooT® Investigation,
_____	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
6 years	Other: Safety Consultant, Management Systems Consultant

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Trained in Incident Investigation, PSM Auditing, OSHA 40 Hour Certification, OHSAS 18001/ISO 14001 Lead Auditor, CPEA certification, other EHS Management Systems
Education:	BSEE, Electrical Engineering, New Jersey Institute of Technology, 1982, Master of Science Management, RPI, 1987
Other Relevant Experience:	Participated in approx. 20 PSM audits, Several large incident investigations lead, over 150 EHS audits in various industries with approximately 25 in the Oil and Gas Industry

4) CAI: CPEA

Date: 6/27/2007

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Gary Ryan

1) Role as Participant: Check all that apply:

3 yr exp	Design Engineer,
3 yr exp	Process Engineer,
2 yr exp	Operations Representative,
	Process Master/Expert,
12+ yr	Management Representative,
5 yr exp	Maintenance Representative,
	Trained Process Hazards Analysis Facilitator,
	Trained Latent Conditions Facilitator,
	Trained Inherently Safer Solutions Facilitator,
Yes	Participant knowledgeable in the process involved,
	Trained Tap RooT® Facilitator
	Trained PSM Audit Facilitator
	Contractor: If involved in a Tap RooT® Investigation,
Yes	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
1 yr	Other: Operations Training Coordinator

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training: Loss control, why tree root cause analysis,

Education: B. Science (Chemical Engineering) University of Alberta 1978
MBA (University of British Columbia) 1986

Other Relevant Experience: Facilitated PHA analysis at Burnaby refinery

4) CAI: Gdry

Date: Jun 25, 2007

Richmond Refinery

Statement of Competency to Participate in Hazard Assessments, Evaluations, Audits or Investigations

NAME:	Guy S. Todaro, Jr.

1) Role as Participant: Check all that apply:

X	Design Engineer,
	Process Engineer,
	Operations Representative,
	Process Master/Expert,
X	Management Representative,
	Maintenance Representative,
X	Trained Process Hazards Analysis Facilitator,
	Trained Latent Conditions Facilitator,
	Trained Inherently Safer Solutions Facilitator,
X	Participant knowledgeable in the process involved,
X	Trained Tap RooT® Facilitator
X	Trained PSM Audit Facilitator
	Contractor: If involved in a Tap RooT® Investigation,
	Other person with appropriate knowledge and experience to thoroughly investigate and analyze an incident,
X	Other: Process Safety Management SME and Project Manager, LRQA OHSAS 18001 auditor training

3) Please document the extent that you are familiar or qualified to participate in these assessments include years of experience:

Training:	Trained in PSM/RMP, PSM Auditing, OHSAS 18001 Auditing, Trained in PHA Facilitation, Trained in TapRoot Incident Investigation, Five Why Incident Investigation, and Loss Prevention System
Education:	B.S., Mechanical Engineering, Mississippi State University, 1981
Other Relevant Experience:	23 years Refining experience, 18 years in PSM as a PSM practitioner. 3 years as a Project Manager implementing PSM in Australia. Have participated on numerous PSM and safety management system audits Team Leader for several years of the Refining PSM Natural Team.

4) CAI GTOD

Date: July 10, 2007

Refinery Audit

AUDIT FINDING

Question ID:	2	**Identifier:**	3.2.1	**PSM**	☑
Element:	Operating Procedures	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Coyle, Reed	**Type:**	2007 PSM Audit		

Finding: Safe Upper & Lower Limits are required to be developed for critical operating parameters, and the consequences of deviating from those limits. There is a similar requirement for documenting Operating Limits and Consequences of Deviating (COD) from those limits in the Operating Procedures. Per Refinery Instruction No. 362 (RI-362), "Process Safety Information", the Richmond Refinery has chosen to document this information in the "COD Table" section of the Electronic Operations Manuals (EOMs) for each specific unit. Based on a review of several COD Tables for a representative sample of units, it appeared to the audit team that Safe Upper & Lower Limits and Consequences of Deviation are not consistently documented in the COD Table. Examples include:
•The auditor could not access COD Tables through the EOM for the Desalter Effluent Benzene Removal Unit (DEBRU) nor the Flare Gas Recovery Unit;
•It appeared to the auditor as if several Safe Upper and Lower Limits were not established in the Naphtha HydroTreater (NHT) and No. 5 Rheniformer units; and,
•It appeared to the auditor as if several parameters in the No. 16 Diesel HydroTreater (DHT) unit did not have consequences of deviating from established limits defined.
[1910.119(d)(2)(i)(D&E), 5189(d)(2)(D & E)]

Audit Team Recommendation: Ensure that all necessary Safe Upper & Lower Limits, Operating Limits, and consequences of deviating (COD) from said limits are documented and available to employees via the COD Tables in the EOMs for each specific unit. See R3.4.2 regarding a periodic review process for COD Tables.

REFINERY ACTION PLAN

General Plan: By 12/31/07 the Refinery will update all necessary Safe Upper & Lower Limits, Operating Limits, and consequences of deviating (COD) tables to ensure that said limits are consistently documented and available to employees via the COD Tables in the EOMs for each specific unit.

Action Item - Plan Details: Dev. Dept. resources to audit and update COD tables for consistency.

Resource note: The results of developing standardized tables may identify the need for technical (PED&DED) support to identify plant/equipment limits which were not previously available. If so, ECD for this is portion is 6/30/08

Assigned To:	Ambrose, James M.	**Dept:**	Development	**Due Date:**	12/31/2007
				Notified On:	

CONFIRMATION AS COMPLETED

Basis for Closure: All COD tables have been audited for consistency of basic information. Some COD tables are more detailed and contain plant specific details not included in others. Although the format varies slightly from Section to section within the refinery, Operators do not work in areas other than those to which they are assigned, making it highly unlikely that an operator would encounter a COD table in a format different than wht he is used to. In the extremely rare cases where an operator transfers to a different section, he would be required to complete all required training for that section including learning the COD table format and information.

Completed By:	Ambrose, James M.	**Completed On:**	1/28/2008

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By:	**Assigned On:**	**V&V Result:**
Completed By:	**Completed On:**	

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID:	3	**Identifier:**	3.2.2	**PSM**	☑
Element:	PSI	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Lizarraga, Brennan	**Type:**	2007 PSM Audit		

Finding: Process Safety Information pertaining to equipment in the process, including safety systems (e.g., interlocks, detection or suppression systems) is required to be developed and maintained for use in facility Process Hazard Analyses (PHAs). Per Refinery Instruction No. 362 (RI-362), "Process Safety Information", the Richmond Refinery has chosen to document descriptions of safety systems on the ChevronTexaco Equipment Information System database. Based on the auditor's search through numerous units included in this system, no safety system descriptions could be found. [1910.119(d)(3)(i)(H), 5189(d)(3)(A)(8)] (See Finding No. 3.4.1.)

Audit Team Recommendation: Consider modifying RI-362 to indicate that Safety System Descriptions may be accessed via the specific section in the Electronic Operating Manuals (EOMs). See R3.4.1 regarding the quality of Safety System information provided in the EOMs.

REFINERY ACTION PLAN

General Plan: By 11/30/07 the Refinery will modify RI-362 (PSI) to indicate that Safety System Descriptions may be accessed via the specific section in the Electronic Operating Manuals (EOMs).

Action Item - Plan Details: Revise RI-362 (PSI) to indicate that Safety System Descriptions may be accessed via the specific section in the Electronic Operating Manuals (EOMs).

Assigned To:	Brennan, Matthew T.	**Dept:**	HES	**Due Date:**	12/30/2007
				Notified On:	10/19/2007

CONFIRMATION AS COMPLETED

Basis for Closure: 1) RI-362 was revised to include the statement "Safety System Descriptions may be accessed via the specific section in the Electronic Operating Manuals (EOMs)"

Completed By:	Brennan, Matthew T.	**Completed On:**	12/6/2007

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By:	**Assigned On:**	**V&V Result:**
Completed By:	**Completed On:**	

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 4 **Identifier:** 3.2.3 **PSM** ☑

Element: PHA **Rating:** Compliance **OE** ☐

Sponsor or Owner Lizarraga, Brennan **Type:** 2007 PSM Audit

Finding: Employers are required to develop and maintain a compilation of written Process Safety Information, including Piping & Instrument Diagrams (P&IDs), to enable the employer and employees to identify and understand the hazards posed by processes involving highly hazardous chemicals before conducting any Process Hazard Analysis (PHA) required by the standard. Based on a review of recently conducted PHAs, interviews with PHA Facilitators and participants, and a review of the backlog of P&ID updates, the audit team concluded that while PSI was routinely compiled and available to the team during the PHA process, the Piping & Instrument Diagrams (P&IDs) used during the PHA process did not appear to have been consistently maintained as complete or accurate. [1910.119(d), 5189(d)]

Audit Team Recommendation: Consider implementing a process to pro-actively increase the accuracy level of P&IDs prior to a PHA or PHA Revalidation. Such a process may include field verification of the P&IDs for the unit under study, and/or increased priority on addressing the backlog of P&ID update requests generated via the Management of Change process.

REFINERY ACTION PLAN

General Plan: By 3/15/8 the Refinery will develop and implement a process to ensure P&ID's are marked-up or are updated to reflect field conditions prior to performing PHA revalidations.

Action Item - Plan Details:
1) HES will provide the annual PHA schedule to the Drafting department supervisor and ABLs each August
2) Provide recommendation to ABL's to ensure P&ID's are current and accurate prior to performing PHA revalidations
3) Endorse & implement plan

Assigned To: Brennan, Matthew T. **Dept:** HES **Due Date:** 3/15/2008

Notified On: 10/1/2007

CONFIRMATION AS COMPLETED

Basis for Closure:
1) Provided 2008 PHA Schedule to Drafting Department Supervisor and have reviewed the PHA schedule with the LT.
2) Created and implemented CAP task for the PSM Coordinator to provide the Refinery Drafting Coordinator with the upcoming year PHA schedule.
3) Drafting Coordinator to work will plant managers/delegates to ensure that all P&ID reflect process conditions.
4) Drafting Coordinator to provided updated P&ID's to the PSM Coordinator 2 weeks prior to commencing the scheduled PHA.
5) In communication to Drafting Department Supervisor, PSM Coordinator to notify impacted managers of the need to update P&ID's for the upcoming PHA.
6) PHA facilitator and team will check P&ID accuracy during the PHA and report inaccurate information as PHA Recommendations
7) PSM Coordinator will have the ability to review PHA recommendations to determine if P&ID update effort is successful.
8) CAP Task created for the PSM Coordinator to perform an annual review of all completed PHA's to determine if effort is successful to have P&ID's current and accurate prior to commencement of the PHA. Success equals fewer PHA recommendations highlighting the need to update P&IDs.
9) PSMC to provide update to the LT (if necessary, and problem condition persists)
10) PSMC/delegate to update metrics

Completed By: Brennan, Matthew T. **Completed On:** 12/5/2007

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By: **Assigned On:** **V&V Result:**

Completed By: **Completed On:**

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID:	5	**Identifier:**	3.3.1a	**PSM**	☑
Element:	PHA	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Lizarraga, Brennan	**Type:**	2007 PSM Audit		

Finding: Process Hazard Analyses, including site-wide Facility Siting studies conducted to understand the hazards associated with occupied buildings near process areas, are required to be updated and revalidated at least every five years to ensure that the analysis is still reflective of the current process, building locations, and occupancy levels evaluated during the study. Appendix H of Chevron's Fire Protection Manual provides guidance as to how Chevron facilities are expected to comply with the requirement in accordance with API RP 752. This includes conducting Building Siting Assessments for all occupied buildings vulnerable to process hazards, and revalidating such assessments on a 5-year frequency. The audit team found no evidence that the site-wide API RP 752 Facility Siting Study conducted in 2000 had been revalidated within a 5-year period. The audit team acknowledges that PHA Revalidations for specific units utilized a checklist review to consider facility siting issues associated with the control room associated with the unit under study. However, the audit team saw no evidence that Building Siting Assessments for other occupied buildings that could be impacted by process hazards had been revalidated within a 5-year period. The audit team acknowledges that a revalidation of the site-wide Facility Siting Study has been scheduled for the Richmond Refinery during the third quarter of 2007.

The Facility Siting Study conducted in 2000 identified several buildings considered vulnerable to process hazards that had been excluded from the scope of the study due to the management of occupancy levels below the established threshold criteria. Neither documentation to identify these buildings, nor evidence of a management system to maintain occupancy levels below the established threshold criteria, could be produced during the audit. [1910.119(e)(6), 5189(e)(2)(D)]

Audit Team Recommendation: Revalidate the API RP 752 Facility Siting Study for the Richmond Refinery to incorporate the changes in personnel occupancy distribution and additional facilities installed since 2000. Upon completion of the Study Revalidation, include the Facility Siting Study in the refinery schedule of PHA Revalidations to ensure that future revalidations are conducted on 5-year intervals.

REFINERY ACTION PLAN

General Plan: Upon completion of the Richmond Facility Siting Study, ECD 11/15/07, the Refinery will review all permanent and temporary buildings to ensure hazards are identified and mitigated in a timely fashion.

Proposed completion date to have all buildings assessed and with risk mitigation plans developed is dependent on GR Instruction endorsement by the GROC - ECD for GROC is 1/2008

ECD for Refinery mitigation plan is 3/31/08

Refinery-wide PHA Schedule has been updated to include the FS study needs to be conducted once every five years.

Action Item - Plan Details: Upon completion of the Richmond Facility Siting Study, ECD 11/15/07, the Refinery will review all permanent and temporary buildings to ensure hazards are identified and mitigated in a timely fashion. Proposed completion date to have all buildings assessed and with risk mitigation plans developed is dependent on work outside of

ECD for Refinery mitigation plan is 8/31/08

Refinery-wide PHA Schedule has been updated to include the FS study needs to be conducted once every five years.

Assigned To: Brennan, Matthew T. **Dept:** HES **Due Date:** 4/30/2008

Notified On:

CONFIRMATION AS COMPLETED

Basis for Closure: a) Facility Siting Study complete but report being reviewed by Corp Law staff as of 8/14/08. The audit team recommendation has been fufiled by conducting this analysis. (COMPLETED)

b) Actions resulting from that audit will be added to the audit tracking database. One new action item will be to review all permanent and temporary buildings to ensure hazards are identified and mitigated in a timely fashion. (COMPLETED)

c) Refinery-wide PHA Schedule has been updated to require a revalidation or redo of the facility siting study once every five years - Complete & posted to the web. (COMPLETED)

Completed By: Brennan, Matthew T. **Completed On:** 8/14/2008

Refinery Audit

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By:	**Assigned On:**	**V&V Result:**
Completed By:	**Completed On:**	

Refinery Audit

AUDIT FINDING

Question ID:	6	**Identifier:**	3.3.1b	**PSM**	☑
Element:	PHA	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Lizarraga, Brennan	**Type:**	2007 PSM and DE Aud		

Finding: Process Hazard Analyses, including site-wide Facility Siting studies conducted to understand the hazards associated with occupied buildings near process areas, are required to be updated and revalidated at least every five years to ensure that the analysis is still reflective of the current process, building locations, and occupancy levels evaluated during the study. Appendix H of Chevron's Fire Protection Manual provides guidance as to how Chevron facilities are expected to comply with the requirement in accordance with API RP 752. This includes conducting Building Siting Assessments for all occupied buildings vulnerable to process hazards, and revalidating such assessments on a 5-year frequency. The audit team found no evidence that the site-wide API RP 752 Facility Siting Study conducted in 2000 had been revalidated within a 5-year period. The audit team acknowledges that PHA Revalidations for specific units utilized a checklist review to consider facility siting issues associated with the control room associated with the unit under study. However, the audit team saw no evidence that Building Siting Assessments for other occupied buildings that could be impacted by process hazards had been revalidated within a 5-year period. The audit team acknowledges that a revalidation of the site-wide Facility Siting Study has been scheduled for the Richmond Refinery during the third quarter of 2007.

The Facility Siting Study conducted in 2000 identified several buildings considered vulnerable to process hazards that had been excluded from the scope of the study due to the management of occupancy levels below the established threshold criteria. Neither documentation to identify these buildings, nor evidence of a management system to maintain occupancy levels below the established threshold criteria, could be produced during the audit. [1910.119(e)(6), 5189(e)(2)(D)]

Audit Team Recommendation: If, during the course of the upcoming Facility Siting Study for the Richmond Refinery, management systems are identified as safeguards to address the risk of process hazards to building occupants, ensure that systems are managed to ensure their on-going effectiveness. Examples of such systems may include, but not be limited to: a.) building pressurization systems, including low pressure alarms; b.) occupancy levels; and/or, c.) fire protection/suppression systems in occupied buildings.

REFINERY ACTION PLAN

General Plan: By 3/31/08 the Refinery will identify the safeguards necessary for each permanent and temporary SIP building and develop periodic review process to ensure those safeguards are functioning as designed.

Action Item - Plan Details:
1) Refer to action item 3.12.1
2) Develop a single checklist too audit manage all SIP buildings to identify existing & necessary safeguards (CDMPLETE)
3) Audit all permanet SIP buildings (To be completed by 12/31/08 by Safety Department-Robinson)

Assigned To:	Robinson, Mark W.	**Dept:**	HES	**Due Date:**	12/31/2008
				Notified On:	10/21/2008

CONFIRMATION AS COMPLETED

Basis for Closure: 12/28/08 Status: Complete - All RI-480 identified SIP buildings were audited during the week of 12/15/2008 using a standard checklist provided by Matt Brennan.
11/2/08 STATUS:
a) Checklist completed by mtbr based upon ETC's guidance documents
b) Audits to be conducted by Safety Department in 4Q-'08
c) CAP tasks to be assigned completion of the initial checklist checklist, which will define the task necessary and the department responsible to ensure the building safegurads are maintained and working as intended.
d) Initial due date was 6/30/08 - to develop checklist (complete). Due date moved to 8/30/08 for completion of audit by CFD. Moved again to 12/1/08 due to CFD task being incomplete. Reviewed again w/ Gary Ryan on 9/30/08. String of e-mail's to support effort to get resources. M. Robinson taking on the role to ensure all SIP buildings are audited prior to YE-2008

Note: GM expects all PSM/OE Items be completed in 2008

Completed By:	Robinson, Mark W.	**Completed On:**	1/12/2009

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By:	**Assigned On:**	**V&V Result:**
Completed By:	**Completed On:**	

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID:	7	**Identifier:**	3.3.2	**PSM**	☑
Element:	PHA	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Lizarraga, Brennan	**Type:**	2007 PSM and OE Aud		

Finding: Recommendations resulting from PHAs and PHA Revalidations are required to be resolved in a timely manner and completed as soon as possible, with a written schedule of when these actions are to be completed, and documentation of the completed item. Sections 5.7 and 5.9 of Refinery Instruction No. 363 (RI-363), "Process Hazards Analysis", indicate that documentation to support completion, or justifiably declining the recommendation, should be retained in the PHA database. Based on a review of the system used by the refinery for tracking and documenting the resolution and implementation of recommendations from PHAs, interviews with the PHA Coordinator(s) for the facility, and interviews with several Project Managers, the audit team saw no evidence of a systematic process to document the resolution and/or actions taken to address recommendations generated from project PHAs. [1910.119(e)(5), 5189(e)(4)]

Audit Team Recommendation: Develop and implement a system to ensure that recommendations generated during PHAs of small capital projects are tracked to closure, with documentation of the actions taken; and that such documents/systems are transmitted to the facility PHA management system upon completion/turnover of the project.

REFINERY ACTION PLAN

General Plan: By 12/15/07 the Refinery will update their policies and procedures to ensure Capital Project and externally performed PHA's and PHA revalidations, and the findings from those studies are managed to completion prior to start-up of the change.

The Refinery will also ensure documentation from these activities are transferred over to the care, custody and control of the Refinery PSM Group

Action Item - Plan Details:
1) Update RI-363
2) Communicate changes to impacted organizations/persons and update work processes to ensure this is sustainable.
3) RI to clarify the expectations that all project PHA final reports and A/C's will be logged into and managed in the PHA database.
RI will reinforce that all Project PHA A/C's for new or modified facilities shall be completed or resolved prior to start-up of the change, as required by the PSM regulation.

Assigned To:	Brennan, Matthew T.	**Dept:**	HES	**Due Date:**	12/15/2007
				Notified On:	10/1/2007

CONFIRMATION AS COMPLETED

Basis for Closure:
1) RI-363 has been updated and posted to the web
2) Met with small and large Capital Project Managers/leads (Evans & Peterson) to discuss issue and agree to use common PHA report tool (PHA Pro-7) to insure consistent documentation of project PHAs.
3) Modified PSSR process to review project PHA findings to ensure they're completed/resolved prior to start-up of the change.
4) Established recurring bi-annual meeting with project managers & leads to review upcoming projects to ensure alignment with PHA goals, objectives, and requirements. First meeting 1/15/2008.
5) Assigned PSMC/WPIA or equivalent top participate on PSSR team to ensure findings are addressed/resolved, prior to start-up of the change. process requirements and agree upon deliverables.
6) PHA recommendations are tracked in the PHA database.
7) PHA findings are maintained in a common database.
8) Recommendations that are overdue are tracked on the HES Dashboard
9) PSSR Exceptions are tracked on the HES Dashboard.

Completed By:	Brennan, Matthew T.	**Completed On:**	12/5/2007

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By:	**Assigned On:**	**V&V Result:**
Completed By:	**Completed On:**	

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 10 **Identifier:** 3.4.1 **PSM** ☑

Element: Operating Procedures **Rating:** Compliance **OE** ☐

Sponsor or Owner Coyle, Reed **Type:** 2007 PSM Audit

Finding: Operating procedures are required to include a description of applicable safety systems and their functions, including interlocked shutdown systems. Based on the auditor's review of several Electronic Operating Manuals (EOMs), it appeared to the auditor that descriptions of interlocked systems and their functions were inconsistently addressed in the Manuals. The auditor reviewed some units, such as Cracking/SRU with very detailed descriptions of interlocked systems and their functions; others, such as Cracking/Butamer, only indicated the process parameter and instrument number that activates the system; others, such as S. Isomax/SRU, did not appear to discuss interlock shutdown systems. [1910.119(f)(1)(iv), 5189(f)(1)(B)(3)]

Audit Team Recommendation: Ensure that Safety System Descriptions, including interlocked shutdown systems and their functions, are consistently documented in the EOMs. Descriptions of interlocked shutdown systems should clearly indicate the process parameter and set point which activates the system, and the function(s) of the end device(s) that is necessary to bring the process into a safe state of operation.

REFINERY ACTION PLAN

General Plan: By 3/31/08 the Refinery will ensure that Safety System Descriptions, including interlocked shutdown systems and their functions, are consistently documented in the EOMs. Descriptions of interlocked shutdown systems will indicate the process parameter and set point which activates the system, and the function(s) of the end device(s) that is necessary to bring the process into a safe state of operation.

Updated plan approved by Ryan & Brennan on 10/15/08:
I have done an extensive audit of 41 EOM's. I have identified all interlock descriptions and created links where appropriate. I have identified the actions necessary to provide consistent interlock descriptions in V.1 Ch. 3 of all manuals.
The third tab on the spreadsheet details the timing for this. Basically we will gather missing information, provide consistent descriptions in V. 1 Ch. 3 of all manuals or provide links to existing descriptions, highlight the COD tables to make it easier to identify instruments related to interlocks and conduct a final review for accuracy and closure by June 30 2009

Action Item - Plan Details: Dev. Dept. resources to audit and update safety system descriptions of interlocked shutdown systems will indicate the process parameter and set point which activates the system, and the function(s) of the end device(s) that is necessary to bring the process into a safe state of operation.

Resource note: The results of developing standardized tables may identify the need for technical (PED&DED) support to identify plant/equipment limits which were not previously available. If so ECD for this is proposed as 6/30/08

Assigned To: Ambrose, James M. **Dept:** Development **Due Date:** 6/30/2009

Notified On: 10/22/2007

CONFIRMATION AS COMPLETED

Basis for Closure: All EOM's have been audited for interlock information. Interlocks have been identified, process parameters, activation points, and function of end device are included for each interlock. EOM's have also been reviewed by local management in each section of the refinery to ensure that all interlocks are included in the EOM.
Supporting documentation can be found in the L&D OE work process folder.
Item was complete by December 19, 2008.

Completed By: Ambrose, James M. **Completed On:** 1/7/2009

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By: **Assigned On:** **V&V Result:**

Completed By: **Completed On:**

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 11 **Identifier:** 3.4.2 **PSM** ☑

Element: Operating Procedures **Rating:** Compliance **OE** ☐

Sponsor or Owner Coyle, Reed **Type:** 2007 PSM Audit

Finding: Operating procedures are required to be reviewed as often as necessary to ensure that they are accurate and reflect current practices. Operating Procedures must include operating limits, safety and health considerations, and safety systems and their functions. From Appendix C of the PSM Standard, OSHA indicates that "Operating Procedures describe tasks to be performed, data to be recorded, operating conditions to be maintained, samples to be collected, and safety and health precautions to be taken". Chevron's Refining PSM Guidance Document dated April 4, 1997 identifies procedures for Normal Operations as including "sampling procedures, equipment monitoring procedures, routine operator duties, periodic checklists, normal control of equipment or processes to key operating parameters based on safety, alarm limits, alarm/shutdown test procedures, and operating turnover requirements".

The Refinery defined the term "Operating Procedures" in Appendix P of the Electronic Operating Manuals Guidebook. Per Appendix P, written step-by-step "Operating Procedures" are only necessary for non-routine duties or tasks, and for routine tasks identified as "Critical" or "Complex". The Refinery has recently implemented an Annual Procedure Review Process to validate those step-by-step procedures meeting the refinery's definition of Operating Procedures.

The Refinery uses Operating Practice Documents, such as Job Aids and Checklists, to communicate the appropriate and consistent manner in which Operators are expected to perform routine tasks and duties in the processing areas. Job Aids are considered to be relatively simple tasks that experienced operators could perform without requiring validation of a step-by-step procedure, but may still be utilized for training purposes and by less experienced operators. Checklists are generally used to ensure that monitoring activities for a number of similar devices are conducted and documented. Most Job Aids and/or Checklists reviewed by the auditor appeared to meet OSHA's and Global Refining's definition of Operating Procedures. Examples of such documents include:

•B&S, Emergency Response Checklist, Loss of Crude Injection Pumps Checklist, TBCE312.doc;
•B&S, Emergency Checklist, Loss of Tank Gauges on Computer Checklist, TBCE308;
•Isomax, TKN/ISO, Operations Checklist, Switch From Liquid to Vaporization Mode, ISO-NP-4222;
•Isomax, ISO-6, Operations Checklist, Commission K-605, ISO-CL-4423;
•Cracking, Alkylation Plant, Job Aid, Response to Foaming Caused by C6 Feed, ALKQ02j;
•Cracking, Alkylation Plant, Job Aid, Sample Contactor Acid, Alkd01j.doc,

But, because these documents do not meet the Refinery's definition of Operating Procedures, they are excluded from the review process. Likewise, other required components of Operating Procedures that are not embedded in the step-by-step procedures, such as; operating limits, safety and health considerations, and safety systems and their functions, were not included in the review process. Interviews with Refinery personnel indicated that there was no other process to periodically review Job Aids, Checklists, COD Tables, or Safety Information contained within the EOMs to ensure their accuracy. [1910.119(f)(3), 5189(f)(3)]

Audit Team Recommendation: Ensure that all documents which meet the regulatory definition of Operating Procedures, or contain required components of Operating Procedures, are included in a periodic review process to assure that the documents are accurate and reflective of current practice.

REFINERY ACTION PLAN

General Plan: By 3/31/08 the Refinery will ensure that all documents which meet the regulatory definition of Operating Procedures, or contain required components of Operating Procedures, are included in a periodic review process to assure that the documents are accurate and reflective of current practice.

Action Item - Plan Details: Revised per Gary Ryan on 12/15/08:
1) Review 33% of job aids in 2008 procedure reviews; per 3 year cycle (COMPLETE).
2) Verify mapping of all PSM requirements to EOM by 1Q-'09.(COMPLETE)

Assigned To: Van Bockern, Deane L. **Dept:** Development **Due Date:** 12/31/2008

Notified On: 10/22/2007

CONFIRMATION AS COMPLETED

Basis for Closure: On number 11, per our disucssion, my access to the details of the action items is currently inoperable, so you were going to sign it for me. I hope to have IT get it fixed this week. In order to close this item, we discussed the basis for closure to be:
1) - The M&P group reviewed more than 33% of all Operating job aids in 2008.
2) - The M&P group provided a mapping of EOM elements in the annual certification letter that each ABU approved. These actions should allow us to close 11. Thanks Dean Van Bockern.

Refinery Audit

Completed By: Brennan, Matthew T. **Completed On:** 1/12/2009

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By: **Assigned On:** **V&V Result:**

Completed By: **Completed On:**

Refinery Audit

AUDIT FINDING

Question ID: 12 **Identifier:** 3.5.1 **PSM** ☑

Element: Operating Procedures **Rating:** Compliance **OE** ☐

Sponsor or Owner Reed, John H. **Type:** 2007 PSM Audit

Finding: Employers are required to consult with operating employees regarding the appropriate frequency and content of refresher training programs. The Operations Training Processes Manual states that "Instructors shall formally solicit feedback from all participants involved in training sessions", and that "employees involved in operating processes will be part of a consultation effort with their head operator, section trainer, and area supervisor...". The audit team identified no evidence of an on-going dialog between operators, operations management, and personnel involved with the delivery of the CBT Refresher Training. Interviews by the audit team with a representative number of operators throughout the refinery indicated that CBT Refresher Training was not consistently effective in ensuring that operators understand and adhere to the Operating Procedures, and that operators did not recall that their feedback was solicited regarding the content and frequency of refresher training. [1910.119(g)(2), 5189(g)(2), Operations Training Process Manual]

Audit Team Recommendation: Strengthen accountabilities within the Operating Departments to ensure that consultation with employees regarding the content and frequency of CBT refresher training is occurring in accordance with the procedure outlined in the Operations Training Process Manual.

REFINERY ACTION PLAN

General Plan: By 12/1/07 the Refinery will implement changes to the CBT training program such that employees can provide feedback on content and frequency of such training. Refinery will periodically review recommendations and consider these in the development of new/revised CBT modules.

Action Item - Plan Details: Update CBT modules (prior to issuance) to add slide and means for employees to provide feedback.

Develop process to review feedback periodically and adjust modules if necessary.

Assigned To: Ambrose, James M. **Dept:** Development **Due Date:** 12/1/2007

Notified On: 10/22/2007

CONFIRMATION AS COMPLETED

Basis for Closure: Modified first slide of every CBT refresher training program to include: " contact your Section Trainer if you have any comments or suggestions".

SFYD- 7/09- Conducted formal crew focus groups to discuss refresher training CBT content and effectiveness. Worked with ABU mangement to create supplemental elements for the refresher training program. In 12/09 formalized crew hypotheticals (plan for BP audit 216) as part of the refresher training program. In 3/10 implemented "Annual Refresher Training Plan" which includes an additional/new element to the refresher training program- Quarterly Refresher Training Disucssions. Q4 each year formal crew focus groups will be held by the Dev Dept Supervisor to discuss content and frequency of RT. The results of those focus groups will guide the topics and elements of the plan for the following year.

Completed By: Ambrose, James M. **Completed On:** 12/19/2007

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By: **Assigned On:** **V&V Result:**

Completed By: **Completed On:**

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID:	13	**Identifier:**	3.5.2	**PSM**	☑
Element:	Training	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Reed, John H.	**Type:**	2007 PSM Audit		

Finding: The California OSHA PSM Standard requires that maintenance employees be provided refresher training at least every three years to ensure safe operation of the facility. The audit team was not shown documentation of an on-going Refresher Training program for Maintenance employees that was developed in consultation with them. [5189(g)(2)]

Audit Team Recommendation: In consultation with Maintenance employees; develop, document, and implement an on-going refresher training program for Maintenance employees.

REFINERY ACTION PLAN

General Plan: By 6/1/08 the Refinery will consult with Maintenance employees; develop, document, and implement an on-going refresher training program for Maintenance employees.

Action Item - Plan Details: Develop process - separate plan will be required to document and demonstrate a written program exists

Maintenance resources needed to co-develop and maintain accuracy

Original due date was 6/1/2008. Reassigned by Gary Ryan 9/10/08. New due date is 12/31/08

Assigned To:	Decker, Dennis H.	**Dept:**	Development	**Due Date:**	12/31/2008
				Notified On:	10/22/2007

CONFIRMATION AS COMPLETED

Basis for Closure: Maintenance Refresher Training process in place. Craft specific refresher classes scheduled. Safe Work Practices matrix in place and SWP refresher assigned to crafts. Maintenance Refresher Training to be included in the O&M OEMSP.

Completed By:	Decker, Dennis H.	**Completed On:**	1/8/2009

VERIFICATION & VALIDATION

Result or Recycle Comments: A Maintenance Refresher Training process was developed in late 2008 and implemented in 2009. Starting in late 2008, focus groups were held with all Maintenance crafts (Metals Craft, Machinists, I&E, RTD, CTR and GMG) including both employees and their supervisors. Attendees were asked for areas that they wanted to include for refresher training, and for their input regarding the frequency for refresher training. After the focus group sessions, management helped shape list into a focused set of topics for the year, and training began in 2009. The L&D Department handles refresher training for the Metals Craft, Machinists, I&E crafts, and the Maintenance Department handles the training for RTD, CTR, and GMG. Each year starting in 2010, the focus groups are set to occur in April so that topics requiring the use of outside consultants to teach can be included in the budget prep for the following year.

Performed By:		**Assigned On:**		**V&V Result:**	
Completed By:		**Completed On:**			

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID:	14	**Identifier:**	3.7.1	**PSM**	☑
Element:	PSSR	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Lizarraga, Brennan	**Type:**	2007 PSM Audit		

Finding: PSSRs are required to confirm that recommendations from PHAs be resolved or implemented prior to the introduction of hazardous materials into the new or modified process or facility; and that modified facilities meet the requirements contained in the Management of Change (MOC) procedure. The PSSR form used by the Richmond Refinery did not appear to require verification and documentation that recommendations generated during the project PHAs, and/or Health & Safety Evaluations (HSE) or various review processes required by the MOC process, have been adequately resolved before introducing hazardous chemicals into the new or modified facilities. [1910.119(i)(2)(iii), 5189(i)(2)(C)]

Audit Team Recommendation: Consider modifying the refinery's PSSR procedure and form to document the confirmation that recommendations generated from previous Hazard Analyses, Risk Assessments, or HSE reviews have been appropriately resolved prior to the introduction of hazardous chemicals into the new or modified facilities.

REFINERY ACTION PLAN

General Plan: By 12/1/2007, Refinery will update their PSSR policy, PSSR checklists, and communicate the change in expectations to the affected personnel. Refinery will ensure ongoing adherence to these expectations via the HES Dashboard.

Action Item - Plan Details: 1) Modifying the refinery's PSSR procedure and form to document the assurance that recommendations generated from previous Hazard Analyses, Risk Assessments, or HSE reviews have been appropriately resolved prior to the introduction of hazardous chemicals into the new or modified facilities.

2) Train/communicate changes

3) Link overdue recommendations to HES dashboard

Assigned To: Brennan, Matthew T. **Dept:** HES **Due Date:** 12/1/2007

Notified On: 10/22/2007

CONFIRMATION AS COMPLETED

Basis for Closure: RI-367 was revised and issued as approved on 10/29/07 and communicated to all personnel on the Refinery Web. Overdue recommendations are now listed on the HES dashboard. Refer to: http://www.ric841.chevron.net/referenc/REF_INST/RI-New/ri-300/ri-367.pdf

Completed By: Brennan, Matthew T. **Completed On:** 11/1/2007

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By: **Assigned On:** **V&V Result:**

Completed By: **Completed On:**

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 16 **Identifier:** 3.9.1 **PSM** ☑

Element: Hot Work Permit **Rating:** Compliance **OE** ☐

Sponsor or Owner Lizarraga, Ayers **Type:** 2007 PSM Audit

Finding: The PSM Standard, and its referenced requirement 29 CFR 1910.252, Welding, Cutting, and Brazing require that facilities designate the individual(s) responsible for authorizing hot work activities and inspecting the areas where the activities will occur. The Richmond Refinery has implemented Refinery Instruction No. 341 (RI-341), Hot Work and General Work Permits, which defines two types of maintenance/construction activities (Open Flame, and Non-Open Flame) that require hot work permits, and also establishes the individuals responsible for authorizing such activities. For Non-Open Flame activities, the Head Operator of the specific process area can authorize and issue the Hot Work Permit. For Open-Flame activities, a member of the Chevron Fire Department must inspect the area before authorizing the work to begin. RI-341 does not appear to address the permitting or authorization requirements when the same work crew is performing a job that would involve both Open Flame and Non-Open Flame activities. The audit team observed several instances where one permit was issued for jobs that involve both Open Flame and Non-Open Flame activities; and, in one instance did not include the higher level of authorization from the Chevron Fire Department. [1910.252(a)(2)(iv)]

Audit Team Recommendation: Revise RI-341, Hot Work and General Work Permits, to address the permitting authorization requirements for work that includes both Open Flame and Non-Open Flame activities. Upon revision of the procedure, ensure that the new requirements are effectively communicated to affected employees and contractors.

REFINERY ACTION PLAN

General Plan: By 2/1/08 the Refinery will ensure that the existing requirements to manage these situations are reinforced and communicated to affected employees and contractors so that the highest level of permitting requirements are met during these situations.

Action Item - Plan Details: Develop and deploy communication plan that specifies the highest permitting requirements shall be met when both open and non-open flame permits exist.

6/20/08 Update. Safety Note reinforcing need for CFD review and approval of use of all Open Flame ignition sources has been forwarded to MC, JY & MS for approval.

Assigned To: Robinson, Mark W. **Dept:** HES **Due Date:** 2/1/2008

Notified On: 10/23/2007

CONFIRMATION AS COMPLETED

Basis for Closure: Safety Note issued.

Completed By: Robinson, Mark W. **Completed On:** 7/2/2008

VERIFICATION & VALIDATION

Result or Recycle Comments: Safety Note was issued on June 20, 2008. In addition, RI changes reflect the requirement that the highest permitting requirements shall be met when both open and non-open flame permits exist.

Performed By: DiPalma, Thomas D. **Assigned On:** **V&V Result:**

Completed By: DiPalma, Thomas D. **Completed On:** 3/26/2010

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 17 **Identifier:** 3.9.2 **PSM** ☑

Element: Operating Procedures **Rating:** Compliance **OE** ☐

Sponsor or Owner Coyle, Reed **Type:** 2007 PSM Audit

Finding: Refinery Instruction No. 841 (RI-841),'Release of Operating Equipment for Mechanical Work, describes how the facility will meet the requirements of 29 CFR 1910.147, Control of Hazardous Energy. RI-841 indicates that management will conduct weekly audits of actual Lock-Out/Tag-Out jobs in progress in each operating area. The audit team was not shown documentation to support that such audits are being consistently conducted on a weekly basis. [Refinery Instruction No. 841, Section 12.0, Auditing]

Audit Team Recommendation: Evaluate the policy requirement of conducting weekly audits of Lock-Out/Tag-Out jobs in the field; and, modify RI-841 (RI-9900), Release of Operating Equipment for Mechanical Work, accordingly to reflect a more obtainable audit goal, while maintaining assurances of effective application of Lock-Out/Tag-Out in the field.

REFINERY ACTION PLAN

General Plan: By 2/15/08 the Refinery will update RI-9900 to specify the appropriate LOTO audit frequency and develop a process to ensure LOTOs are performed at the specified frequency

Action Item - Plan Details:
1) Identify frequency of audits and persons responsible to conduct audits.
2) Update RI-9900
3) Create CAP tasks to ensure audits are performed
4) Consider linkage to dashboard

Assigned To: Robinson, Mark W. **Dept:** HES **Due Date:** 12/31/2008

Notified On: 10/23/2007

CONFIRMATION AS COMPLETED

Basis for Closure: 12/28/08 Update: 1) Complete - RI-9900 language updated to say "periodic LOTO audits are conducted by the ABU as part of the refinery's routine Safe Work Practice audit process, consistent with the local IIPP plan." CAP tasks to assure IIPP audits are done were assigned to the STLs earlier this year. 2) Complete - see above 3) Complete - see above. 4) Complete - The HES Dashboard currently highlights overdue CAP tasks - including IIPP and therefore LOTO and other SWP audits.
Date changes to 12/15/08 by mtbr on 9/23/08; as part of the 3Q-'08 update to GM headquarters. Original due date was 2/15/08. 12/12/08 update: RI will be updated to address this action item and ready for circulation to management for approval by the noted due date. It is not anticipated the instruction will be approved prior to the end of 2008.
Final RI-9900 has been approved, 1Q 2010.

Completed By: Robinson, Mark W. **Completed On:** 1/12/2009

VERIFICATION & VALIDATION

Result or Recycle Comments: All Action items were completed, as noted. RI-9900 revision approved 1Q 2010, states periodic audits are required. CAP System has periodic LOTO audit requirements for STLs.

Performed By: DiPalma, Thomas D. **Assigned On:** **V&V Result:**

Completed By: DiPalma, Thomas D. **Completed On:** 3/26/2010

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 19 **Identifier:** 3.10.1a **PSM** ☑

Element: Training **Rating:** Compliance **OE** ☐

Sponsor or Owner Coyle, Reed **Type:** 2007 PSM Audit

Finding: MOC procedures are required to address the potential impact of the change on the safety and health of the work force. Refinery Instruction No. 370 (RI-370), Management of Change, indicates that this will be addressed and documented either by a team performing a Health & Safety Evaluation (HSE) or a Process Hazard Analysis (PHA). The audit team reviewed approximately 42 MOC documents and associated supporting documents, and interviewed personnel who attend HSE meetings. It appears to the audit team that the evaluation of certain changes relative to the impact of the change on the safety and health of employees in the workplace is not being conducted and/or documented with sufficient rigor, attention to detail, and/or appropriate subject-matter-expertise does not adequately understand and manage the risks posed by the change.

Based on the documentation provided, the following are examples in which attention to detail and/or subject-matter-expertise does not appear to have been adequately addressed in the HSE meetings - [1910.119(l)(2)(ii), 5189(l)(2)(B)]

Audit Team Recommendation: Evaluate the training requirements for key personnel having significant roles in the MOC process and ensure that training specific to their job duties is provided both initially upon job assignment, and periodically to ensure effective implementation of the MOC process.

REFINERY ACTION PLAN

General Plan: By 3/31/08 the Refinery will have identified and trained key affected personnel involved in the MOC to the level necessary to understand and conduct their MOC responsibilities.

Personnel with new/changed responsibilities within the MOC process will be trained to the level necessary to understand and conduct their MOC responsibilities

Action Item - Plan Details: Identify new or modified positions assigned to support MOC process

Develop MOC refresher training – with the focus on depth of analysis, quality of reviews, and thoroughness of documentation

Assigned To: Lassen, William G. **Dept:** HES **Due Date:** 3/31/2008

Notified On: 10/17/2007

CONFIRMATION AS COMPLETED

Basis for Closure: 1) Restricted access level changes for reviewers of the MOC database to the PSM Specialist who will evaluate and train personnel with new roles or changed responsibilities.

2) Current RI-370 MOC refresher training evaluated and sceduled for updating by year end.

Completed By: Lassen, William G. **Completed On:** 3/27/2008

VERIFICATION & VALIDATION

Result or Recycle Comments:

Performed By: **Assigned On:** **V&V Result:**

Completed By: **Completed On:**

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 20 **Identifier:** 3.10.1b **PSM** ☑

Element: MOC **Rating:** Compliance **OE** ☐

Sponsor or Owner Lizarraga, Brennan **Type:** 2007 PSM Audit

Finding: MOC procedures are required to address the potential impact of the change on the safety and health of the work force. Refinery Instruction No. 370 (RI-370), Management of Change, indicates that this will be addressed and documented either by a team performing a Health & Safety Evaluation (HSE) or a Process Hazard Analysis (PHA). The audit team reviewed approximately 42 MOC documents and associated supporting documents, and interviewed personnel who attend HSE meetings. It appears to the audit team that the evaluation of certain changes relative to the impact of the change on the safety and health of employees in the workplace is not being conducted and/or documented with sufficient rigor, attention to detail, and/or appropriate subject-matter-expertise to adequately understand and manage the risks posed by the change.

Based on the documentation provided, the following are examples in which attention to detail and/or subject-matter-expertise does not appear to have been adequately addressed in the HSE meetings - [1910.119(l)(2)(ii), 5189(l)(2)(B)]

Audit Team Recommendation: Consider conducting more frequent audits of completed MOC documentation and work products to ensure that the impact of the proposed change on the safety and health of employees in the workplace is being conducted and documented with sufficient rigor, attention to detail, and/or appropriate subject-matter-expertise.

REFINERY ACTION PLAN

General Plan: By 2/28/08 the Refinery will improve the established MOC health and safety evaluation process to ensure these reviews are being conducted and documented with sufficient rigor, attention to detail, and/or appropriate subject-matter-expertise

Action Item - Plan Details: 1)Understand what's broken

2) Identify tools and audit expectations

3) Identify owners within ABU's or departments to audit HSEs

4) Develop CAP tasks
to ensure periodic reviews continue

5) Perform periodic reviews of local audit findings with PSMSC

6) Provide findings and recommended action plan into to OE MOC annual plan

Assigned To: Lassen, William G. **Dept:** HES **Due Date:** 2/28/2008

Notified On: 10/17/2007

CONFIRMATION AS COMPLETED

Basis for Closure: 1) Audited 5% of HSE's completed during last three years. Joined in on a number of HSE's. Determined that quality HSE's are performed and the issue is in the documentation. Concerns that are resolved in the meeting aren't always captured. Only concerns that needed resolution were carried as action items.

2) HSE audit tool developed. Audit expectations are 2 per month per ABU.

3) WPIA's trained on use of audit tool and issued CAP tasks to audit 2 HSE's per month.

4) CAP task issued to PSM Specialist to review HSE audits.

5) PSM CAP task includes sharing findings with PSMSC.

6) PSMC to provide findings and recommended action plan into to OE MOC annual plan.

Completed By: Lassen, William G. **Completed On:** 1/31/2008

VERIFICATION & VALIDATION

Result or Recycle Comments: PSMSC reviewed pressentation by Gary Lassen which identified stewardship activities and their results (which is performed for the PSMSC every 6 months). V&V performed by Gary Ryan & Matt Brennan on 9/10/08

Performed By: **Assigned On:** **V&V Result:**

Refinery Audit

Completed By: **Completed On:**

Refinery Audit

AUDIT FINDING

Question ID:	21	**Identifier:**	3.10.2	**PSM**	☑
Element:	MOC	**Rating:**	Compliance	**OE**	☐
Sponsor or Owner	Lizarraga, Brennan	**Type:**	2007 PSM Audit		

Finding: Employers are required to manage changes to process technology and equipment; including addressing how the change might impact the safety and health of employees, the necessary time period for the change, and establishing authorization requirements for the change. Based on interviews with refinery personnel, it did not appear to the audit team that processes for managing changes associated with temporarily placing critical alarms or shutdown systems in by-pass mode for a continued period of time (longer than required for routine testing of shutdown systems) adequately addressed the requirements of the MOC element. Based on interviews with refinery personnel, it appeared to the audit team that different Business Units were managing this process differently, and that clear authorization requirements or time periods for which the by-passed condition will be authorized were not consistently established, and a documented evaluation of how continued operation with the by-passed condition may impact the health and safety of employees in the workplace was not consistently performed. [1910.119(l)(2)(ii, iv, & v), 5189(l)(2)(B, D, & E)]

Audit Team Recommendation: Develop and implement a standard process/procedure for authorizing the by-passing of critical alarms or shutdown systems. The process/procedure should clearly indicate who has authority for approving such by-pass operations, an evaluation of risk (including other mitigating factors) of operating the by-passed condition, a time period for which the by-passed condition will be allowed, and a means to ensure that the by-passed condition is returned to its normal state.

REFINERY ACTION PLAN

General Plan: By 11/31/07 the Refinery will develop a refinery-wide, fit-for-purpose management of change process addressing the team recommendations.

Same as OE AOC Item SWP SB1

Action Item - Plan Details:
1) Gather SME input
2) Develop straw proposals
3) Update database
4) Test system functionality
5) Developetraining material
6) QA/QC Review & stakeholder review
7) Implement and communicate changes to the affected personnel

Assigned To: Lassen, William G. **Dept:** HES **Due Date:** 12/15/2007

Notified On: 10/17/2007

CONFIRMATION AS COMPLETED

Basis for Closure:
1) SME input gathered and reviewed.
2) Developed two proposals and shared with stakeholders who selected one.
3) Built new database for recording and tracking of bypassed safety devices.
4) Database underwent rigorous testing and further development.
5) Presented to stakeholders for review and endorsement.
6) Developed training materials and trained Section Heads and Shift Team Leaders on the use of the database. Shift Team Leaders have a CBT sign off to review training material and database with crews.

Completed By: Lassen, William G. **Completed On:** 11/29/2007

VERIFICATION & VALIDATION

Result or Recycle Comments: (10/8/09 interm review by mtbr) The database shows several incoinsistencies which Gary Lassen is reviewing and will report back to mtbr on by 10/21/09. Examples - 1) large number of open items: was change placed in service or did they change their mind to bypass?, 2) One RBU not using the database regularly (as anticipated), 3) Approvals to close missing, 4) No process to train new or transferred workers involved in the process, 5) RI does not reflect practice in the field, etc... Prior to recyling, the problem will be investigated and an action plan to address the gaps will be developed in consultation with the PSM TL, PSM/OE Mgr & PSM Specialist. Results from investtigation will be shared with RLT and support of the action plan will be endorsed by the applicable RLT Safety team leaderdship.

Performed By:	**Assigned On:**	**V&V Result:**
Completed By:	**Completed On:**	

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 22 **Identifier:** 3.10.3 **PSM** ☑

Element: MOC **Rating:** Compliance **OE** ☐

Sponsor or Owner Lizarraga, Brennan **Type:** 2007 PSM Audit

Finding: For changes to process chemicals, technology, equipment, and/or procedures that result in a change to Process Safety Information or Operating Procedures as defined by the regulation, such information and procedures are required to be updated accordingly. The audit team reviewed approximately 42 MOCs. The auditors observed approximately 14 affected documents that appeared to be in need of update for which updates could not be verified.

Audit Team Recommendation: In conjunction with Recommendation 3.10.1B, consider conducting more frequent audits of completed MOC documentation and work products to ensure that appropriate Process Safety Information and Procedures are updated accordingly.

REFINERY ACTION PLAN

General Plan: By 3/31/08 the Refinery will establish and institute an MOC assessment process to periodically ensure the proper PSI & Procedures associated with an MOC are identified and updated in accordance with the MOC timing requirements.

Action Item - Plan Details:

1) Identify tools and audit expectations

2) Identify owners within ABU's to audit MOCs

3) Develop CAP tasks
to ensure reviews continue

4) Perform periodic reviews of ABU audit findings with PSMSC

5) Provide findings and recommended action plan into to OE MOC annual review

Assigned To: Lassen, William G. **Dept:** HES **Due Date:** 3/31/2008

Notified On: 10/17/2007

CONFIRMATION AS COMPLETED

Basis for Closure:

1) Audit expectations identified and shared with WPIAs.

2) Currently ABU WPIAs audit PSI for every MOC before closure.

3) CAP task developed for PSM Specialist to audit MOC PSI.

4) CAP task includes reviewing audit findings with PSMSC.

5) PSMSC to provide findings and recommended action plan into to OE MOC annual review.

Completed By: Lassen, William G. **Completed On:** 3/28/2008

VERIFICATION & VALIDATION

Result or Recycle Comments: Gary R. & Mmatt B. reviewed activities, action plan, and progress. Excellent & sustainable changes implemented. Good Job Gary

Performed By: Brennan, Matthew T. **Assigned On:** **V&V Result:** Approval

Completed By: Brennan, Matthew T. **Completed On:** 10/27/2008

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 25 **Identifier:** 3.12.1 **PSM** ☑

Element: Emergency Planning & Response **Rating:** Compliance **OE** ☐

Sponsor or Owner Lizarraga, Ayers **Type:** 2007 PSM Audit

Finding: Refinery Instruction No. 480 (RI – 480), Emergency Action Plans, indicates that all personnel should move to a designated shelter-in-place facility immediately upon hearing the refinery-wide alarm siren and subsequent announcement. RI – 480 also designates several buildings throughout the Refinery as Shelter-In-Place facilities to serve as safe havens in the event of an emergency. During the Facility Siting Study performed in 2000, these buildings were inspected to ensure that they could meet certain criteria to effectively function as a Shelter-In-Place facility. Such criteria included: a.) penetrations on all four sides of the building are sealed, or supplies are provided such that penetrations can be quickly sealed; b.) a single point shutdown switch for the HVAC units; and, c.) adequate communication equipment including phones, plant radios, and speakers tied into the facility public address system. The audit team performed a physical inspection of Hydro-Processing Building # 2, which was designated as a Shelter-In-Place facility. The auditors observed that the doors of the building appeared to be in various states of disrepair and that sufficient equipment did not appear to be provided to ensure that the building can be adequately sealed in a timely manner during an emergency situation. In addition, the audit team could not locate evidence of a management system, such as a drill schedule or inspection plan, the purpose of which is to ensure that Shelter-In-Place buildings are maintained appropriately to effectively serve as a safe place of refuge during an emergency. [1910.120 (q)(2)(iv) and Refinery Instruction No. 480]

Audit Team Recommendation: During the course of the upcoming Facility Siting Study for the Richmond Refinery, perform an inspection of all buildings delegated as "Shelter-In-Place" locations in the Refinery's Emergency Action Plan to ensure that the building is capable of meeting the established criteria to effectively function as a safe haven in the event of an emergency. Implement a management system to ensure that "Shelter-In-Place" buildings are maintained to ensure their on-going effectiveness, based on the criteria for which they were originally selected.

REFINERY ACTION PLAN

General Plan: By 1/28/08 the Refinery will develop a current list of all "Shelter-In-Place" buildings then develop and implement a management system to ensure that new and existing "Shelter-In-Place" buildings are maintained to ensure their effectiveness is maintained.

Action Item - Plan Details:

1) Refer to insurance audit recommendation

2) Develop a single checklist too manage all SIP buildings and identify all existing and necessary safeguards.

3) Implement PM program, CAP tasks and/or routine duties to document and manage the intefgrity of these systems

4) Turnover plan to Building Siting Plan owner - will meet with Bob Vanderlann new owner in Jan 09

Assigned To: Ayers, Mark M. **Dept:** HES **Due Date:** 1/30/2008

Notified On: 10/23/2007

CONFIRMATION AS COMPLETED

Basis for Closure:

1) A Single listing of all building including SIP buildings is kept current and owned by the Drafting department, this listing shows the building, building owner and the date of the last Action Plan.
2) The listing is reviewed annually by the Manager Emergency Services and the Drafting Supervisor
3) No changed can be made to any evacuation plan or SIP building without the approval of the building owner and the Manager Emergency Services
4)

Note M Robinson to audit SIP buildings prior to 12/31/08

Completed By: Mark Ayers **Completed On:** 5/8/2009

VERIFICATION & VALIDATION

Result or Recycle Comments: New RI completed and going through final approval process

Performed By: Bosworth, Gregory A. **Assigned On:** **V&V Result:** Approval

Completed By: Ayers, Mark M. **Completed On:** 3/12/2010

Refinery Audit

Refinery Audit

AUDIT FINDING

Question ID: 26 **Identifier:** 3.13.1 **PSM** ☑

Element: IIPP **Rating:** Compliance **OE** ☐

Sponsor or Owner Lizarraga, Ayers **Type:** 2007 PSM Audit

Finding: The California OSHA PSM Standard, and its derivative requirement, 8 CCR Section 3203, Injury and Illness Prevention Programs, require that employers conduct scheduled periodic inspections to identify work place hazards, and unsafe conditions and work practices. The Standard also requires that records of such inspections identify the person(s) conducting the inspection, the issues observed, and action taken to correct any identified unsafe conditions and work practices; and that the records be retained for at least one (1) year. Refinery Instruction No. 300 (RI – 300), Injury and Illness Prevention Plan, assigns the responsibility for the inspections and necessary corrective actions, including documentation of such activities, to the Area Business Unit Managers, Division Managers, and the Maintenance Leadership Team to implement in their respective areas. The specific plans for the various areas generally indicate that inspections will occur monthly; and records of the inspections, including documentation of the corrective actions will be managed via an IIPP Audit database. Based on a review of the IIPP Audit database, it appeared to the auditor that records of inspections and corrective actions are not systematically documented in the database. [3203(b)(1)]

Audit Team Recommendation: Strengthen the accountability mechanisms to ensure that documentation of work place inspections and corresponding corrective actions performed in accordance with the Injury and Illness Prevention Plan (IIPP) are routinely input into the IIPP Audit database.

REFINERY ACTION PLAN

General Plan: By 2/1/08 the Refinery will clarify and reinforce expectations with the affected personnel regarding documenting IIPP audits and the management of findings from those audits. Additionally, periodic audits of the IIPP database will be performed to ensure those objectives are met.

Action Item - Plan Details:
1) Identify personnel required to conduct these audits
2) Clarify and reinforce expectations regarding documenting IIPP audits and managing findings from these audits.
3) Implement CAP tasks or equavelent to ensure audits are conducted and documented at the specified frequency and that corrective actions are managed to completion for responsible for conducting audits.
4) Create CAP tasks or equavelent to ensure audits and actions are documented and addressed

Assigned To: Robinson, Mark W. **Dept:** HES **Due Date:** 1/30/2008

Notified On: 11/14/2007

CONFIRMATION AS COMPLETED

Basis for Closure: A CAP task has been assigned to each refinery STL to ensure audits are done on a monthly basis for each crew, and that the audits are documented and tracked in the ABU IIPP file database.

Completed By: Robinson, Mark W. **Completed On:** 6/20/2008

VERIFICATION & VALIDATION

Result or Recycle Comments: Cap tasks have been assigned to conduct audits. Audits are documented in either an ABU IIPP file database, or in the PSM Audit Database, depending on ABU. A spot check of IIPP Audit database items shows mixed results in documenting completion, most ABU's are 100%. The process (CAP) is set up for the documemting completion of the audits and assuring completion of all action items.

Performed By: DiPalma, Thomas D. **Assigned On:** **V&V Result:**

Completed By: DiPalma, Thomas D. **Completed On:** 3/26/2010

Refinery Audit